Annual AVMA Meeting

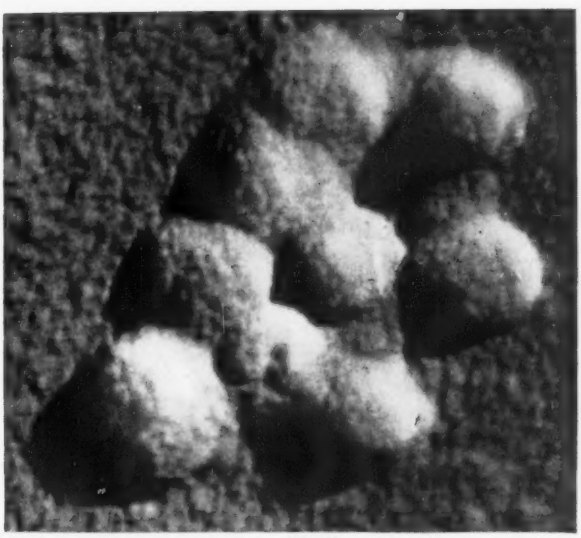
Denver, Colorado

August 14-18, 1960

Journal

OF THE

AMERICAN VETERINARY MEDICAL ASSOCIATION



Electron photomicrograph (x 75,000) of Anaplasma marginale gives clue to mode of transmission. Page 417.

Vol. 136 May 1, 1960 No. 9

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Journal

OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION

Vol. 136 No. 9 May 1, 1960

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Correspondence

February 29, 1960

Dear Sir:

I read with extreme interest—and even more dismay—the editorial (J.A.V.M.A., Jan. 15) about the medical profession being subjected to too much technical writing. Actually, the problem is not too much technical writing but too little reading on the part of the medical practitioners. There can never be too much technical writing or too much time devoted to reading of this technical writing.

When an individual becomes a member of one of the medical professions, he assumes the responsibility of administering the best and the most recently developed therapy. Not only this, but he assumes the responsibility for knowing why he is administering this therapy. Without more technical journals publishing papers of quality and more practitioners reading these journals, the human medical and veterinary medical professions will continue producing —and reaping the harvest of this production—mere apprentices.

I was interested in noting the source of the editorial: *Medical Economics*. This is a "journal" devoted to how the practitioner can make a "buck," and not to how he may provide a humane service.

I am proud that the journal representing the veterinary profession, the AVMA JOURNAL, obviously does not subscribe to the philosophy of "dollars before knowledge."

s/Robert L. Hamlin, D.V.M.
Ohio State University
Columbus 10, Ohio

[Editor's Note: The article in *Medical Economics* as quoted by the J.A.V.M.A. cited a Detroit physician who suggested that medical journals print really informative (quality) material only and eliminate reports written just to boost ego, build professional prestige, meet demands of specialty boards, colleges' accreditation committees, etc.]

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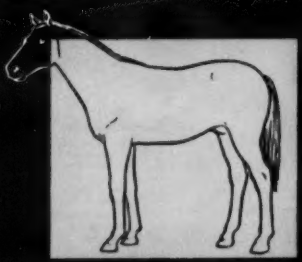

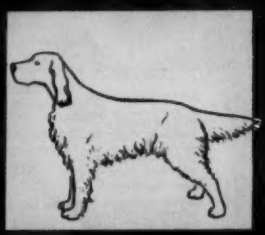

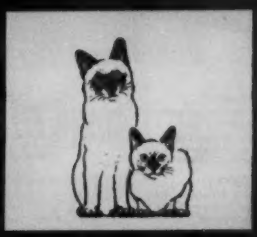

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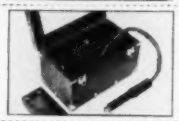

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LEGISLATIVE

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S. J. Res. 115, donation of land in Washington, D. C. as site for Pan American Health Organization headquarters, became P. L. 86-395 on March 28, 1960.

PHS Personnel Bill Cleared

Public Health Corps bill cleared for President March 29, when Senate concurred in House amendments to S. 2220 (see JOURNAL April 15, 1960, adv. p. 14).

School Milk Program Passes Senate

School milk program passed Senate March 29 with amendments. Commodity Credit Corp. funds for current fiscal year up to $85 million; fiscal 1961—$95 million, and program thereafter on permanent basis at $95 million annually (see JOURNAL April 1, 1960, adv. p. 6).

Label Declaration Ammendments Approved

Committee on Interstate and Foreign Commerce favorably reported *H.R. 7480,* to amend the federal Food, Drug and Cosmetic Act, with respect to label declaration of use of pesticide chemicals (see JOURNAL April 15, 1960, adv. p. 14).

Insurance Program for Persons Over 65 Introduced

Senators Javits (R., N. Y.), Cooper (R., Ky.) and Scott (R., Pa.) will introduce legislation in form of voluntary insurance program providing medical, hospital, and nursing home benefits for persons age 65 or over. Premiums graduated to subscribers' income, coverage not limited to social security recipients. Federal aid to come from appropriations, not payroll tax as proposed in Forand and similar bills.

DHEW Appropriations Pass House

Labor-HEW appropriations for fiscal year 1961, (*H.R. 11390*) passed House without amendment on March 29. Total is $4,184,022,731, of which $3,169,044,531 is provided for HEW. Included is $876,929,200 for PHS, and $16,852,000 for FDA. Rejected were amendments to increase funds for FDA by $3,591,000, and to provide $322,000 for equipment for radiological study.

(continued on adv. p. 14)

Is this man passing out of the picture?

Take a long, hard look at this sketch. Then look down the road about ten years. Will today's much-needed, highly respected veterinarian be in this picture of tomorrow—or will he have gone the way of the Indian and the buffalo?

Frankly, there is cause for concern. Many suppliers of veterinary products are selling through non-professional outlets to be used by laymen.

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WASHINGTON NEWS—Continued

NEW BILLS

Water Pollution Act

H.R. 10351, Rep. Reuss (D., Wis.), amend Federal Water Pollution Control Act to expand research, extend state and interstate water pollution control program grants, and strengthen enforcement procedures. Would provide that 5 regional research laboratories be established and equipped by the Surgeon General.

MISCELLANEOUS

AEC Research Contracts Exceed a Million Dollars

Latest life science research contracts by AEC total $1,532,-651. They include 15 in medicine, 29 in biological studies, 2 in environmental science, and 1 in radiation instrumentation.

Drug Label Advisory Service Established by FDA

FDA has set up an advisory service for drug manufacturers on the wording of caution labels. Requests should be directed to Division of Public Information, Food and Drug Administration, Department of Health, Education and Welfare, Washington 25, D. C.

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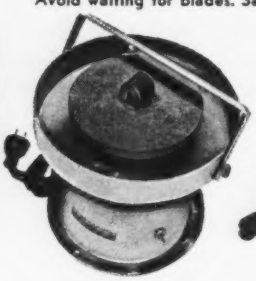
Royal 7—7" Metal Disc & Stone Wheel



the IMPERIAL

Fast grinding stone wheel that guarantees super sharp blades every time (note protective guard ring and adjustable grinding rail)

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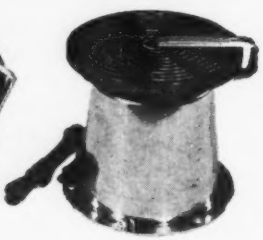

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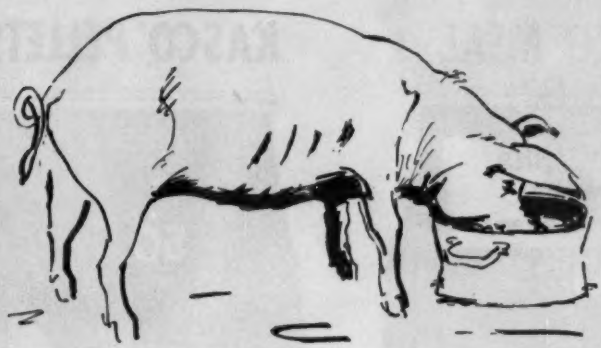

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REFERENCES: 1. Vickers, C. L.: Personal communication. 2. Filion, R., and Trepanier, M.: Personal communication. 3. Lannek, N., and Brag, S.: Vet. Med. 49:75-78 (Feb.) 1954. 4. Felgate, C. A., and Swann, H. C.: Vet. Rec. 68:259-262 (May 5) 1956. 5. Guthrie, J. E.: Vet Med. 47:307-314 (Aug.) 1952. 6. Guthrie, J. E.: Personal communication.

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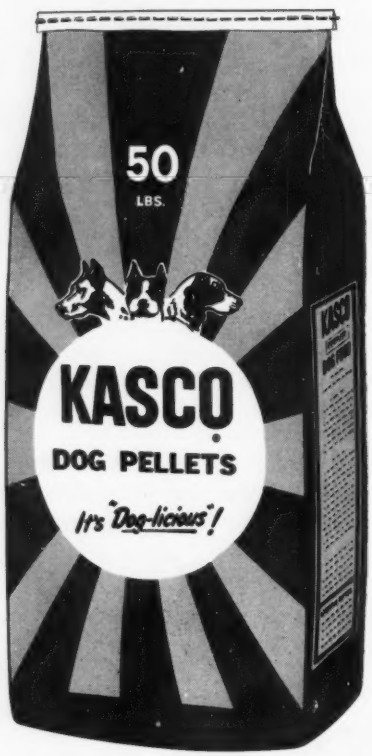

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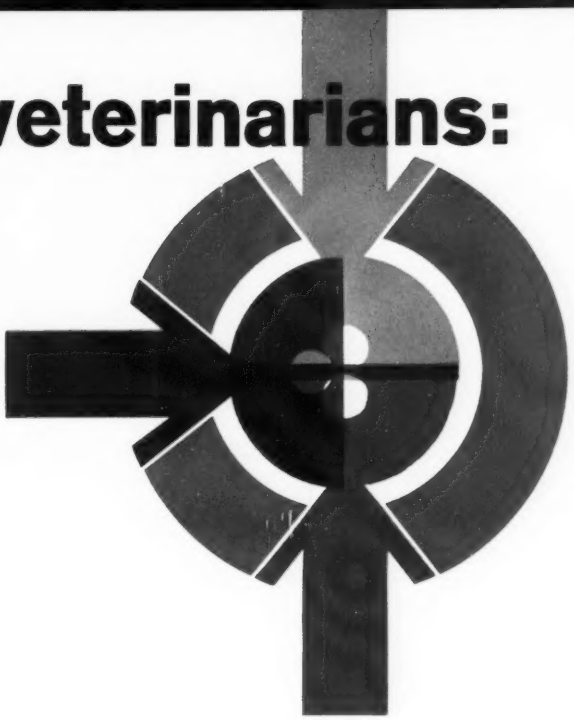

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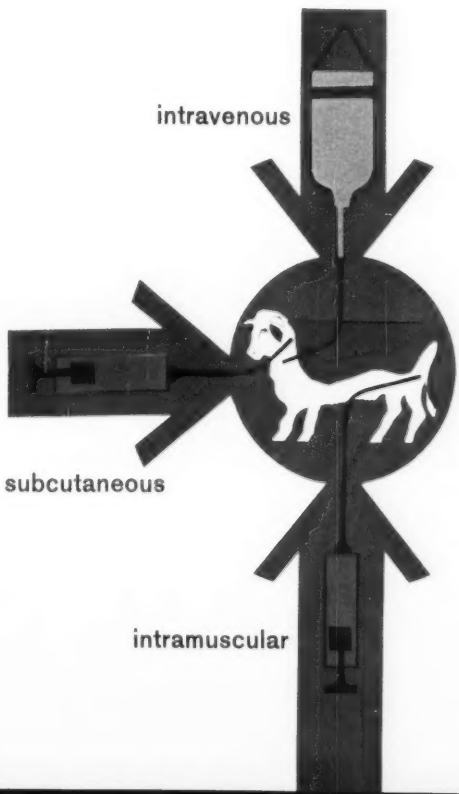

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Excessive earwax is not only a hindrance to aural examination but presents a physical barrier to therapeutic agents as well. A cerumen plug can be responsible for otitis externa, itching and pain.

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References: 1. Pollock, S.: Vet. Med. **54**:97 (Feb.) 1959. **2.** Hoffer, S. H.: Clinical report to CIBA. **3.** Weir, H. T., and Hazelrig, J. W.: Clinical report to CIBA.

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*Anderson, F. B.: Vet. Med. *54*:535, (Oct.) 1959.

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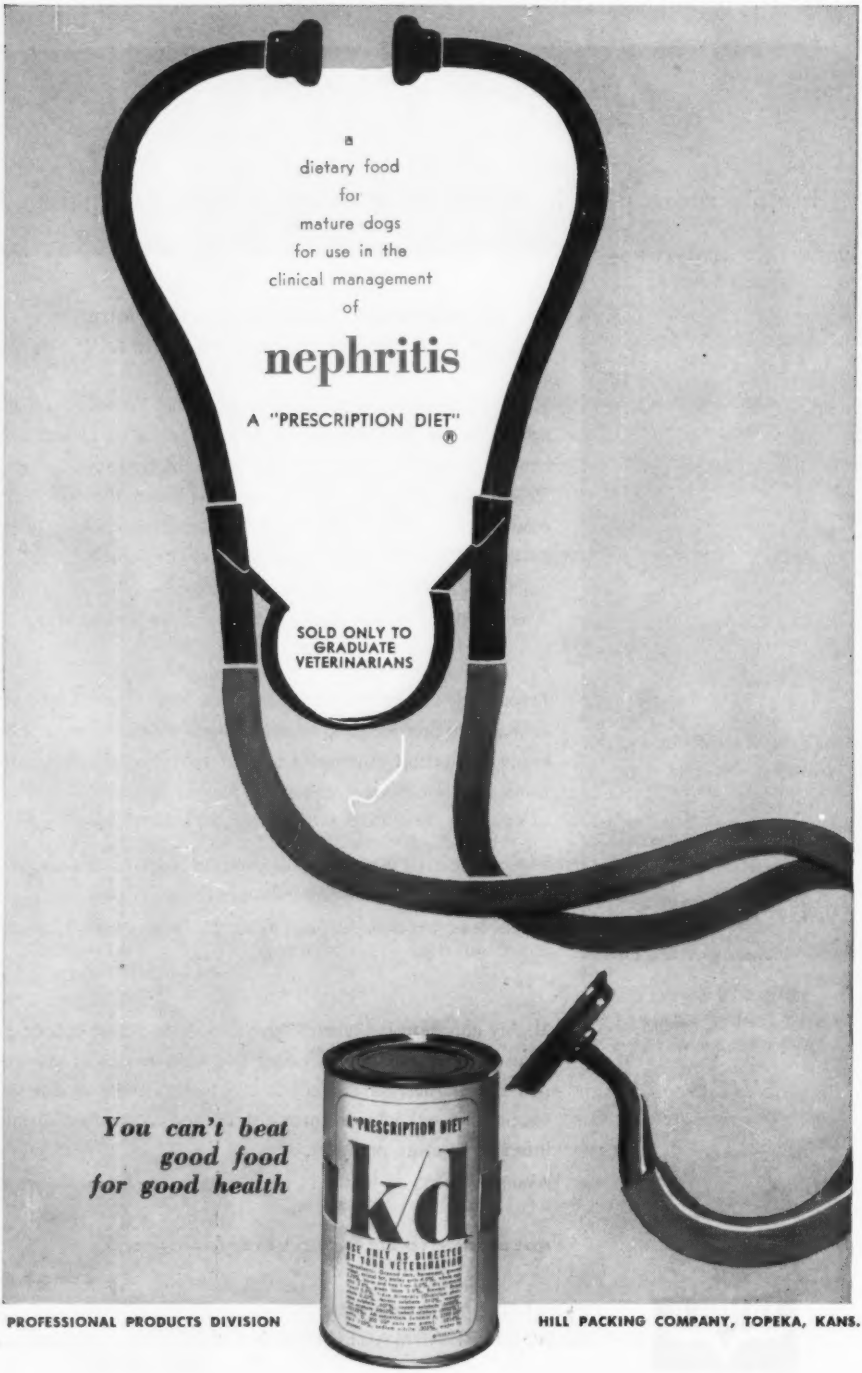

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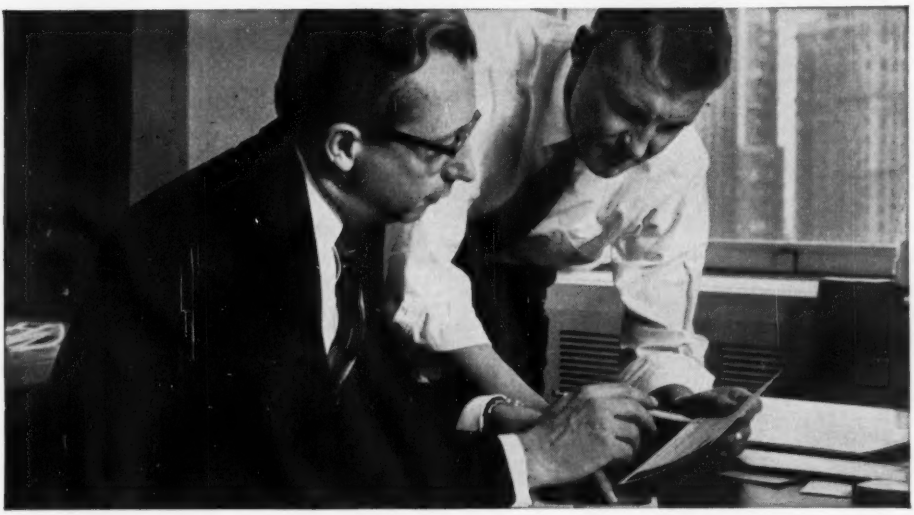

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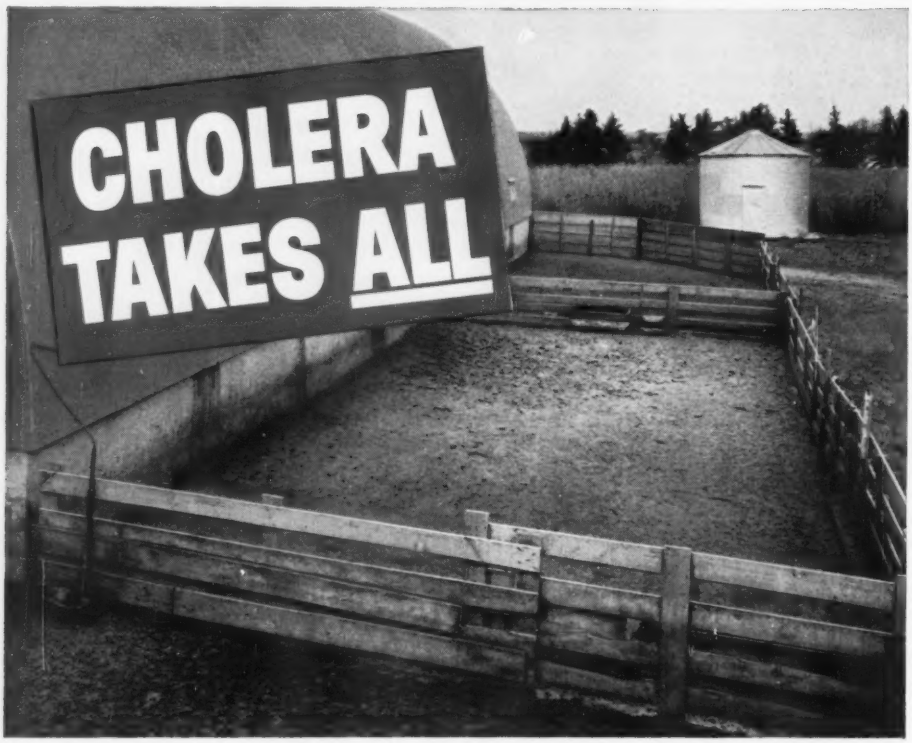

This dramatic photo, featured in Fort Dodge farm paper advertising, is a graphic reminder that cholera takes not just pigs, but all the corn, care and cash the farmer has in them. All ads urge professional vaccination.

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Vol. 136

No. 9

May 1, 1960

Journal

OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION

Structural Characterization of

Anaplasma marginale

In Acute and Carrier Infections

Miodrag RISTIC, D.V.M., PH.D.

INVESTIGATIONS of the morphologic characteristics and structural configuration of *Anaplasma marginale* have been conducted by numerous workers using light, phase, and electron microscopy.[2-4, 7-9] The methods employed, however, failed to resolve *A. marginale* forms to a degree necessary for its adequate detailed description and comparison with well classified microorganisms.

In the present study, a technique of dehemoglobinizing *A. marginale*-infected erythrocytes has been devised wherein the organism is clearly observed as a shadowcast object using the electron microscope. The replica technique and ultrathin sections of infected erythrocytes also were employed for detailed structural analysis of the organism. In addition, *A. marginale* was viewed in lysed erythrocytes by means of phase microscopy.

From the Department of Veterinary Science, University of Florida. Florida Agricultural Experiment Stations Journal Series, No. 935.

Dr. Ristic is now professor at the Department of Pathology and Hygiene, College of Veterinary Medicine, University of Illinois, Urbana.

This investigation was supported in part by a research grant (E-1312) from the National Institute of Allergy and Infectious Diseases of the National Institutes of Health, U. S. Public Health Service.

The author is indebted to Dr. A. E. Vatter, biophysicist, Abbott Laboratories, North Chicago, and Mr. J. W. Carlisle, laboratory assistant, Department of Physics, University of Florida, for technical assistance.

Literature Review

The classical marginal Anaplasma body has been described as being composed of 8 spherical bodies; an extraerythrocytic form of the organism was also described.[9] The etiologic agent was reported to possess protozoan characteristics.[9] The marginal Anaplasma body consists of a central, undivided mass and peripheral elementary bodies of high electron density, 170 to 220 mμ in diameter.[2] Presence of these submicroscopic units has been associated with persistence of the infective agent in the blood stream after acute symptoms of the disease disappeared, and with the fact that marginal bodies disappear or are difficult to detect at this stage of infection. Submicroscopic units dispersed throughout the erythrocytes have not always been observed.[3] Using fluorescein-labeled anti-Anaplasma globulin, lysed infected erythrocytes were observed to harbor numerous Anaplasma forms generally smaller in diameter than the classical marginal body.[14]

Projections or tails extending from the typical Anaplasma body have been reported which were said to stain light pink with Giemsa's stain in contrast to the deep purple color of the body.[9] By examination of infected hemolyzed erythrocytes with the phase and electron miscroscopes, *A. marginale* was found to be motile and provided with a flagellum extending from its somatic portion.[4] On the basis of these observations, *A. marginale* appeared to be a true parasite probably belonging to the Protozoa.

Utilizing ultrathin sections of Anaplasma-infected erythrocytes, the marginal Anaplasma body appeared as a clear space at the margin of the erythrocyte containing 1 to 7 masses of dense par-

ticulate matter.[7] A typical particle consisted of a central mass and a peripheral ring separated by a clear zone. The size of the particles described was 10 mμ. Because no internal structures, such as nucleus, mitochondria, and endoplasmic reticulum were observed, and in view of earlier studies,[6] it was concluded by certain investigators that the causative agent of anaplasmosis was a virus.[7]

Materials and Methods

The technique employed to study the organism in its extra- and intraerythrocytic stage consisted of a modification of a previously described method.[16] Blood samples from acutely infected and carrier animals were collected in Alsever's solution.[3] Following 3 washings of the erythrocytes in 0.85 per cent sodium chloride solution, approximately 2.0 ml. of a 2.0 per cent erythrocyte suspension in sodium chloride solution was prepared. The cells were packed gently by centrifugation. The supernatant fluid was removed and 1.0 to 2.0 ml. of distilled de-ionized water was added to the sedimented cells. The suspension was gently agitated for 20 to 30 seconds, and immediately 0.2 ml. was poured into a delivery pipette situated in a vertical position 17 inches above a slide containing on its surface a copper grid covered with collodion membrane. From this position, the material was sprayed on the collodion membrane by forced air under 10 lb. pressure. The specimens were shadow-cast with chromium at an angle of 19 degrees. In addition, the replica technique was employed to further determine the structure of the Anaplasma initial body with the electron microscope.[5] The Philips electron microscope model 100 was used in this study.

The ultrathin sections of Anaplasma-infected erythrocytes were prepared by fixing washed erythrocytes with 0.1 per cent osmium tetraoxide[11] to which 0.3 per cent $MgCl_2 \cdot 6H_2O$ was added.[18] Sections were cut with a Sjöstrand ultramicrotome, and varied from 10 to 30 mμ in thickness. They were viewed in a RCA-EMU-2E or EMU-3C electron microscope.

Morphologic characteristics of *A. marginale* also were observed with a phase microscope, using washed infected erythrocytes which were exposed to guinea pig complement and to an antibody produced in rabbits against bovine erythrocytes.[4]

Particulate matter found in the lysate resulting from the lysis of erythrocytes by auto-immune antibody[12] was washed in sodium chloride solution by means of a Spinco model L preparative ultracentrifuge at 4,000 g for 10 minutes. The sedimented material was subsequently incubated for 1 hour in 20 volumes of 1:5 serum diluted in sodium chloride solution, and then examined with the electron microscope. The serum was obtained from a calf with acute anaplasmosis. Corresponding control specimens employing serum of an Anaplasma-free calf also were used.

Results

Classical *A. marginale* inclusions stained by Giemsa's method appeared as dense homogeneous, bluish purple, round bodies 0.3 to 1.0 μ in diameter, situated at or near the outer margin of the erythrocyte when viewed with a light microscope (fig. 1). Stained with fluorescein-labeled anti-Anaplasma globulin and examined with ultraviolet light microscope, the classical inclusions appeared as brilliant yellow-green, sharply defined, round bodies (fig. 2).

Three distinct morphologic forms, apparently associated with development of *A. marginale*, were revealed by studies with the electron microscope. These consist of the classical marginal inclusion or the largest form; a smaller form, or initial body, a subunit of the classical inclusion; and the smallest form, a polyhedral body, a subunit of the initial body. The classical marginal inclusion, depending on the size of initial bodies, may contain 1 to 8 observable initial bodies and vary in size from 0.3 to 0.1 μ. The inclusion in its mature stage appears as a round, compact,

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Legends for Figures 1-6 on Opposite Page

Fig. 1—Giemsa-stained classical marginal Anaplasma bodies. Light microscopy; x 685.

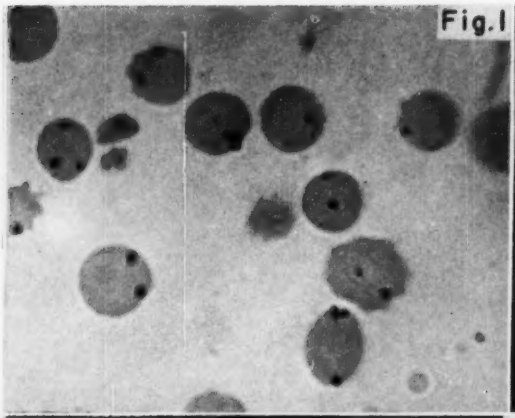
Fig. 2—Marginal Anaplasma bodies stained with fluorescein-labeled anti-Anaplasma globulin. Utraviolet microscopy; x 685.

Fig. 3—Marginal Anaplasma body appearing as a round, compact cottonball-like structure consisting of 5 initial bodies. Electron microscopy; x 14,575.

Fig. 4—A single initial body in the erythrocyte of a healthy carrier. Electron microscopy; x 12,860.

Fig. 5—Erythrocyte of an acutely infected bovine animal containing initial bodies (larger forms) and polyhedral bodies (smaller forms) dispersed throughout the cell. Electron microscopy; x 23,135.

Fig. 6—Polyhedral bodies appearing in the cell-free state. Electron microscopy; x 42,880.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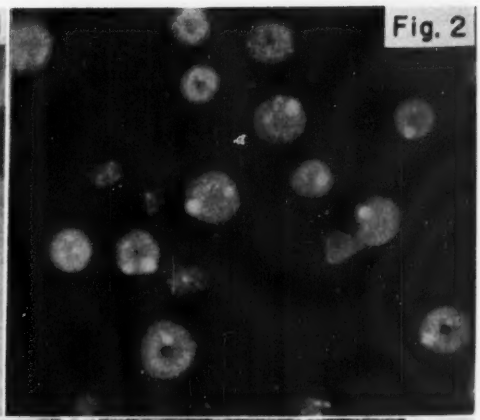
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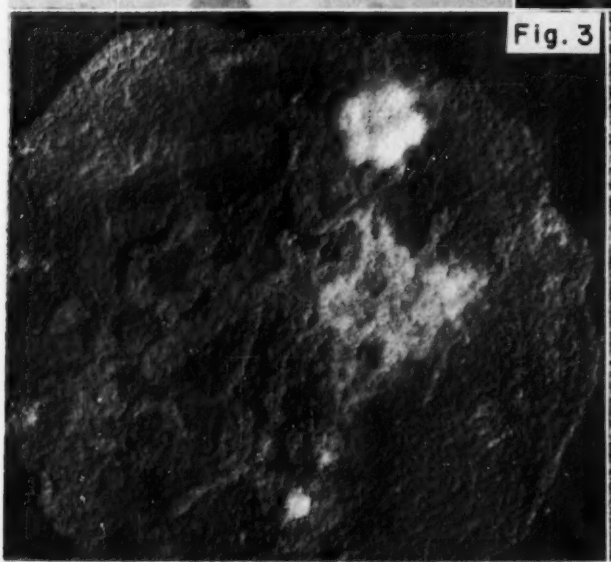
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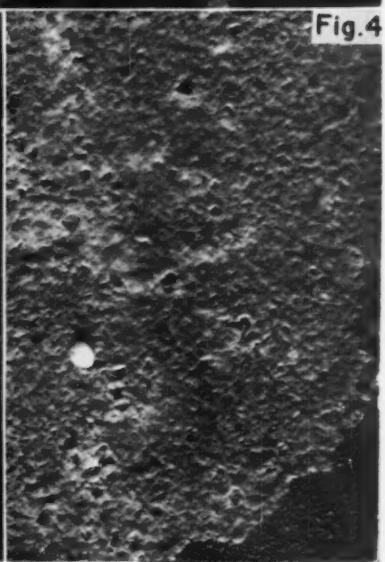
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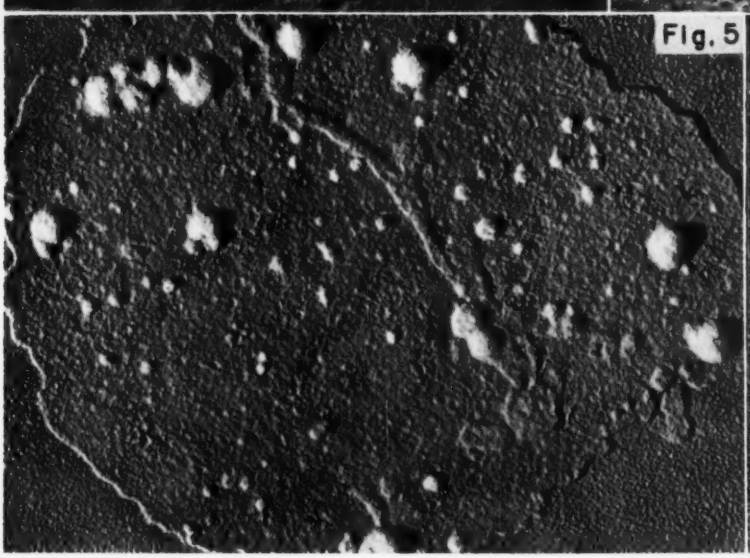
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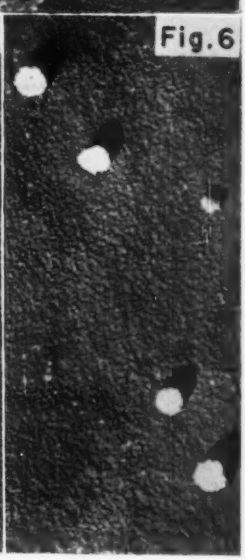
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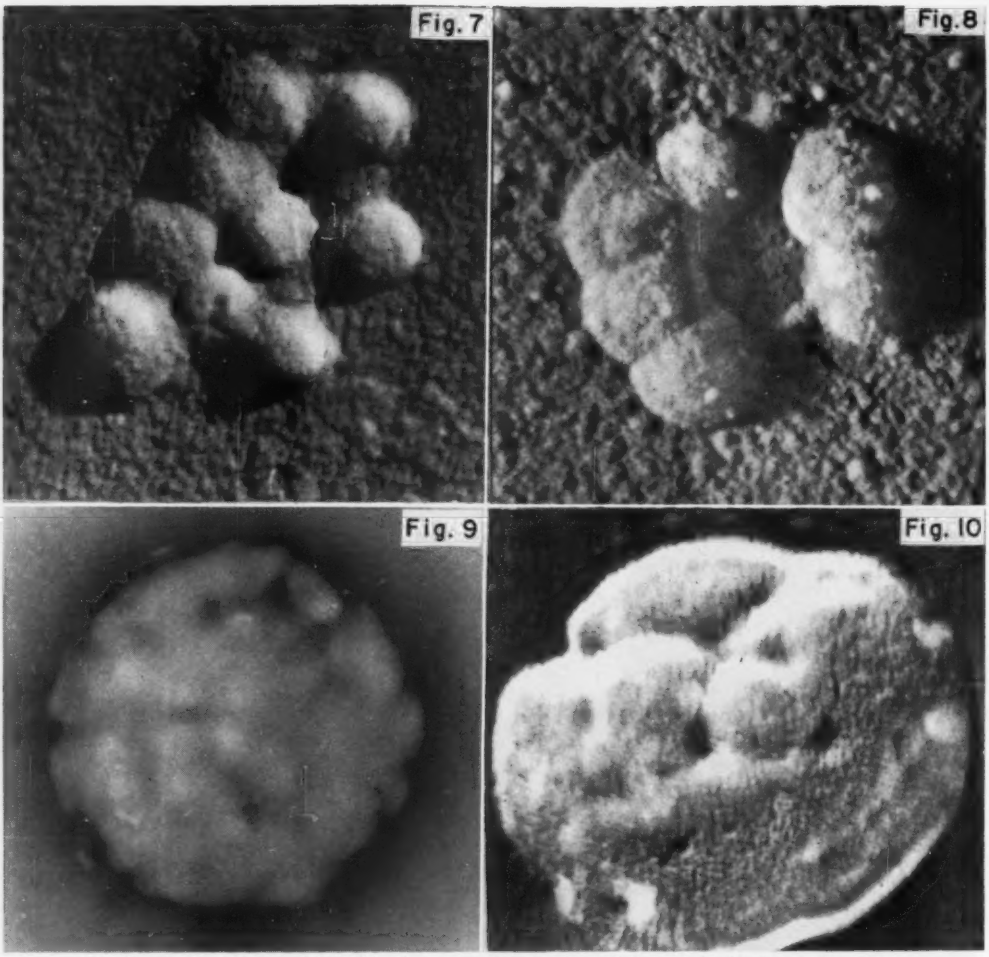


Fig. 7—An aggregate of initial bodies appearing in the cell-free state. Electron microscopy; x 56,250.

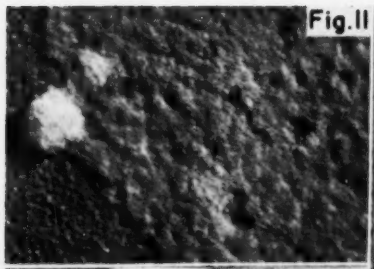
Fig. 8—An incomplete marginal Anaplasma body consisting of seven initial bodies. Note apparent formation of a matrix substance. Electron microscopy; x 43,500.

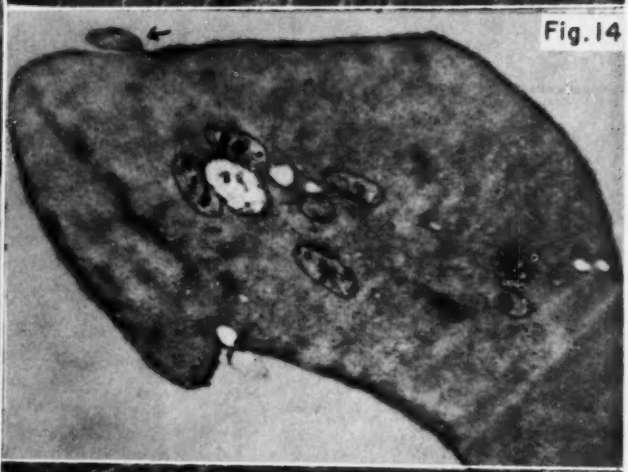
Fig. 9—An initial body consisting of numerous granular sub-units or polyhedral bodies of uniform size. Electron microscopy; x 150,000.

Fig. 10—An initial body prepared for examination by means of the replica technique. Electron microscopy; x 150,000.

cottonball-like structure with a wavy surface caused by the protruding initial bodies (fig. 3). The initial bodies occupy approximately three-fourths of the structure of the classical inclusion body. These bodies appear laterally fused with each other while centrally they are associated with an undifferentiated mass, possibly a matrix substance (fig. 8). Since this matrix substance has not been observed until the complete inclusion has formed, it would be reasonable to assume that it consists of elements derived both from the organism and the host.

The initial body, the second unit of the developmental cycle of *A. marginale*, is round or oval in shape, measuring at its mature stage 300 to 400 $m\mu$ in diameter. In addition to its participation in formation of the inclusion body this form may occur singly, in pairs, or in aggregates within the erythrocytes, within the erythrocytic membrane, or outside the membrane (fig. 5,7,11,12,14,15,17). Initial bodies were





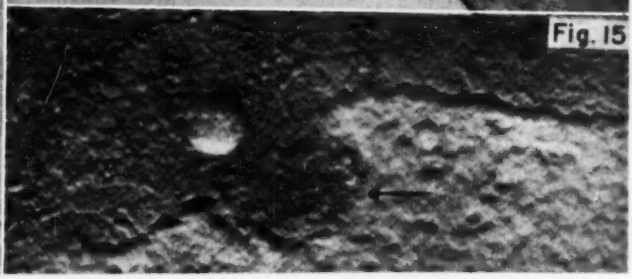


Fig. 11—An initial body within the erythrocytic membrane. Electron microscopy; x 30,000.

Fig. 12—Pair of initial bodies transgressing the membranes of 2 adjacent erythrocytes. Electron microscopy; x 12,750.

Fig. 13—Ultrathin section of an erythrocyte showing the classical inclusion body composed of several initial bodies. Electron microscopy; x 30,000.

Fig. 14—Ultrathin section of an erythrocyte containing several singly distributed initial bodies. Notice the initial body attached to the red blood cell and the lysis of the cell membrane at the site of attachment. Electron microscopy; x 30,000.

Fig. 15—A liberated initial body. Notice damaged erythrocytic membrane at the site of liberation of this body. Electron microscopy; x 30,000.

observed dispersed throughout the erythrocyte apparently with no constant localization. Not more than 2 mature initial bodies per erythrocyte were observed upon examination of carrier animal blood (fig. 4), while 2 or more initial bodies, in various phases of development, were demonstrated within individual erythrocytes of acutely infected animals (fig. 5). Nearly every erythrocyte of acutely infected animals

contained initial bodies, whereas the organism was present in approximately 1 of every 10 to 20 erythrocytes of a carrier animal. An observation made on highly magnified electron micrographs revealed that the initial body consists of numerous granular subunits of uniform size (fig. 9). Similar results were obtained when the replica technique was employed (fig. 10).

Examinations of ultrathin sections of erythrocytes containing classical inclusion bodies together with singly distributed initial bodies have shown that the latter is surrounded by a membrane (fig. 13,14). It is suspected that the electron density of this membrane does not differ from the density of the remaining structure of the initial body, thereby making it difficult to be observed in unsectioned preparations. Sections of infected erythrocytes further revealed that the internal undifferentiated mass of the initial bodies contained numerous, dense irregularly distributed, polymorphic particles approximately 10 to 20mμ in diameter. In addition to the two-dimensional electron micrographs, which indicated ability of the initial body to transgress the erythrocytic membrane (fig. 11,12,15), the serial sections of infected erythrocytes clearly showed the initial body attached to the red blood cell with an indication of lysis of the cell membrane at the site of attachment (fig. 14). Sections of intracellular initial bodies bore some resemblance to mitochondria occurring in reticulocytes. Mitochondria appeared broader, however, and were provided with an inner membrane invaginated in centripetal folds or cristae.

Of the three units (Classical inclusion, initial body, and polyhedral body) probably associated with the development of *A. marginale*, the initial body is believed to represent the modus operandi for initiation and perpetuation of the infection.

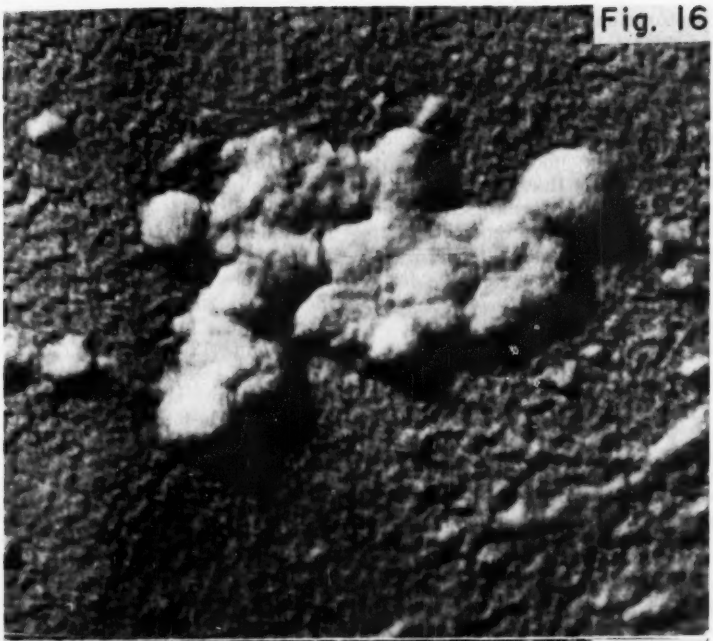
The third form of the developmental cycle, the subunit of the initial body or the polyhedral bodies, was observed in the erythrocytes of animals affected with acute anaplasmosis. They consist of particles which appear as a dense compact mass, polyhedral in shape, and varying in size from minute macromolecular structures 40 to 50 mμ in diameter to initial body size of 300 mμ (fig. 5). Their average size range, however, was 90 to 120 mμ in diameter. They have been observed as single or aggregated forms in the lysate of infected erythrocytes following action (fig. 6) of auto-antibody.[12]

Examination of infected erythrocytes exposed to the hemolytic system by phase microscopy revealed that less than 3 per cent of the marginal Anaplasma bodies exhibited passive vibratory movement during the process of hemolysis.[13] The movement was considered to be caused by the dynamic forces of the diffusing fluids associated with the mechanism of hemolysis. The bodies showing vibratory movement appeared to be provided with an oval purple-bluish projection. The latter is considered to be matrix material of the Anaplasma body.

Aggregation of initial bodies occurred following exposure to serum from an animal infected with *A. marginale* (fig. 16).

Discussion

Of the 3 units (classical inclusion, initial body, and polyhedral body) herein described as probably associated with the development of *A. marginale*, the initial body is believed to represent the *modus operandi* for initiation and perpetuation of the infection. This consideration has been based on the information obtained from studying a series of electron micrographs of erythrocytes of acutely infected and carrier animals, and from additional evidence secured from filtration studies of infected erythrocytic lysates.[12] Two of the most convincing facts favoring the term "initial body" are its ability to transgress the erythrocytic membrane and to persist in the erythrocytes of the carrier animals. Static evidence demonstrating intraerythrocytic occurrence of the initial body (fig. 5) in its various growth stages, occurrence of this body in the erythrocytic membrane (fig. 11,12) or in close proximity to it with indication of



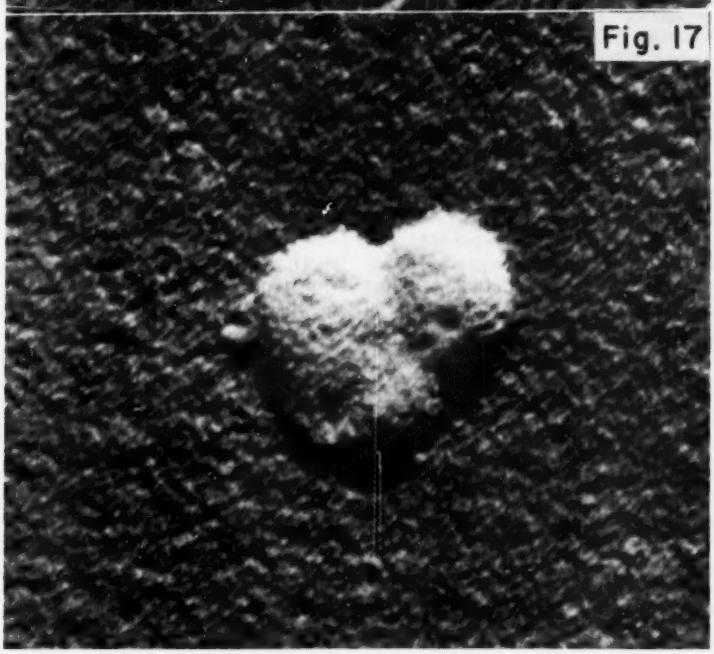


Fig. 16—A large aggregate of initial bodies formed following exposure of these bodies to serum from an animal infected with *A. marginale*. Notice a disintegrated initial body and liberated granular forms. Electron microscopy; x 45,000.

Fig. 17—Marginal Anaplasma body in the cell-free state consisting of 3 initial bodies. Electron microscopy; x 65,000.

localized perforation of this membrane (fig. 14,15), indicates the capacity of this form of *A. marginale* to participate in completion of an extra- and intraerythrocytic cycle. Persistence of the initial body in the erythrocytes of carrier animals is probably the most convincing justification for its designation, indicating that this body probably represents the true form of the organism necessary for its interepizootic survival. Furthermore, the persistence of the initial body in the erythrocytes of carrier cattle explains the infectivity of the blood from these animals.

The persistence of the initial body in the erythrocytes of carrier cattle explains the infectivity of the blood from these animals.

Since the sectioning method failed to detect the border lines between individual granular subunits of the initial body, one may speculate that the particles of high electron density may be associated with or be the components of these subunits. Moreover, on the basis of their high electron density, these particles may represent nucleoproteins and organic iron precipitates, the presence of which was detected histochemically in the classical inclusion body.[10] Failure to demonstrate granular subunits in sections may be due to a lack of differential density of intergranular and granular substance upon action of osmium or redistribution of components of initial body during fixation which obscures or distorts the structure of the granular subunits.

Differences in data offered by other investigators[7] and data in this report, with respect to the structure of *A. marginale* studied upon ultrathin sections of infected erythrocytes, are to be found in interpretation and the additional structural configuration of the organism observed in this study. Others[7] have identified accumulations of dark particles as viral units, 10 mμ in diameter, while this study has demonstrated that they are granular subunits of the initial body surrounded by a membrane and representing an integral unit. It is possible that these subunits represent genetic material responsible for growth of the initial body which, by increasing in size, may fuse with adjacent developing initial bodies thus gradually forming an incomplete (fig. 8) and finally complete classical marginal inclusion (fig. 3).

Elementary bodies described by other investigators,[2] and the initial bodies described in the present study, probably represent identical structures. The discrepancies in size of these bodies, 300 to 400 mμ in this report, and 170 to 220 mμ in others,[2] may have been caused by different methods of preparing the specimens, techniques of illustrating the object, and the state of the object (intra- or extracellular). In the present study, both the initial and the polyhedral bodies were viewed for the first time in the cell-free state (fig. 6-10, 16).

Designation of the third Anaplasma form as "polyhedral body" describes approximately the appearance of this form (fig. 6). Indication of transformation from polyhedral to initial body was supported by the static electron microscopic evidence revealing the size of polyhedral bodies within a single infected erythrocyte varying, as previously pointed out, from minute macromolecular structures to initial body size. It should be remarked, however, that within the limits of a single initial body, polyhedral units appear as homogeneous granulated matter generally smaller than 100 mμ in diameter (fig. 9,17).

The biophysic techniques employed in this study have permitted the organism to be clearly observed in various positions and growth stages. The forms described have been constantly and repeatedly observed in more than 20 animals studied during a 2-year period. Lack of agreement between present data and those reported by other investigators[4] may have resulted from differences in Anaplasma strains or species of the organism studied by the latter workers. Since they did not reproduce their observations in all animals studied and did not report the presence of flagellated forms in carrier animals, it may be that these workers were dealing with mixed infections of Anaplasma and another organism which invades bovine erythrocytes. In fact, although there was no mention of it, some of their illustrations indicate the presence of initial bodies scattered throughout the

erythrocyte in addition to a single body provided with a flagellum-like structure.

The structural characteristics of *A. marginale* described here have a direct bearing on the biologic classification of these organisms, by comparing characteristics of these organisms with those of well-established classification. For this purpose, one has to take into consideration over-all information concerning *A. marginale* and the complex syndrome of the disease it subtends.

Summary

By means of electron microscopy, 3 distinct morphologic forms associated with the development of *Anaplasma marginale* have been observed. These consist of the classical marginal inclusion body constituting the largest form, measuring 0.3 to 1.0 μ in diameter, occupying a marginal position within the erythrocytes; an intermediate size initial body, or subunit of the classical inclusion, 300 to 400 mμ in diameter; and a smaller form, or polyhedral body, a subunit of the initial body, which averages 90 to 120 mμ in diameter.

Supporting evidence is presented which indicates that the initial body persists in the erythrocytes of carrier cattle, thus explaining the infectivity of blood from these animals. Furthermore, the ability of the initial body to transgress the erythrocytic membrane, and in this manner participate in completion of an extra- and intraerythrocytic cycle, is demonstrated.

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Effect on Reproduction of Diethylstilbestrol in Dairy Cattle

Diethylstilbestrol was fed to dairy cows for varying periods extending to 330 days. There was no adverse effect on estrous cycle, conception, or gestation when stilbestrol was fed as part of the daily grain ration at levels of 5 to 15 mg./1,000 lb. of body weight. Three cows receiving the 20 mg./1,000-lb. of body weight level aborted; however, several others fed this level had no reproductive difficulty. There were no apparent detrimental side effects from feeding diethylstilbestrol.—*J. Dai. Sci., 42, (1959): 1351.*

Persistence of Latent

Anaplasma marginale Infection

in Deer

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IT HAS BEEN demonstrated recently that *Anaplasma marginale* is capable of producing anaplasmosis in Columbian black-tailed deer (*Odocoileus hemionus columbianus*).[2,4] Experimental infections have produced mild disease which would probably be inapparent under field conditions. However, fatal anaplasmosis occurred in splenectomized fawns. carriers indefinitely, although an occasional animal eliminates its infection by unexplained means. It is of scientific interest and practical importance to know whether this also applies to the infection in deer, since deer and cattle occupy the same range lands. Information concerning duration of the carrier state in deer is lacking.

TABLE 1—Results of Inoculations of Splenectomized Calves with Blood from Deer that Had Been Carriers of *Anaplasma marginale* for Approximately 11 Months

			Complement-fixation data				Anaplasma-body data					
								Peak anaplasma body levels		Lowest PCV value		
Calf (No.)	Deer (No.)	Volume of inoculum (ml.)	CF titer of inoculum (1:5 dil.)	Antibodies first detected (Postinfect. day)	Peak antibody levels (Postinfect. day)	(Titer*)	Anaplasma bodies first detected (Postinfect. day)	(Postinfect. day)	(% rbc. with A)	(Postinfect. day)	(Hematocrit reading)	Mortality
277	1	17	±	19	31	2,560	21	27	50	29	8.5	Survived.
275	2	15	0	19	31	640	25	31	53	32	11.0	Died 34 days post-infection.
270	4	20	2+	19	28	1,280	19	25	33	27	10.0	Died 29 days post-infection.

*Titer expressed as reciprocal of serum dilution; CF = complement-fixation; r.b.c. = red blood cells; A = Anaplasma bodies; PCV = packed cell volume; Postinfect. = postinfection.

It has also been shown that this species of deer harbors *A. marginale*, since blood collected from deer in the wild state produced typical anaplasmosis when inoculated into susceptible cattle.[1,3,4]

Infected cattle are known to persist as

Data on the persistence of the carrier state has been obtained from 3 deer that were experimentally infected. They were 4- to 6-year-old uncastrated males inoculated on July 11, 1957, with blood from 2 bovine carriers of the same strain of *A. marginale*.[2] Circumstances did not permit holding these deer longer than 11 months.

The deer were confined from fawnhood in a limited drylot area enclosed with woven wire fencing. The only ectoparasites observed on the animals on the several occasions they were caught for blood sampling were limited numbers of fleas and wingless

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This study was in part a contribution of Federal Aid in Wildlife Restoration, California project W-52R.

flies (Hippoboscidae). Conditions of confinement were such that chances for reinfection were extremely remote.

Blood samples were obtained from these 3 deer on June 5, 1958, 11 months after artificial infection, and inoculated intravenously on the same day into 3 splenectomized calves in amounts of 17, 15, and 20 ml. All calves developed anaplasmosis. Antibodies were detectable 19 days after inoculation, and Anaplasma bodies were observed in blood cells concurrently or a few days later (table 1). At the peak of infection, the percentages of erythrocytes containing Anaplasma bodies were 50.0, 53.0, and 33.0 per cent, while packed cell volumes of erythrocytes at the point of greatest anemia dropped to 8.5, 11.0, and 10.0 per cent in the Wintrobe hematocrit tube. Marked increase in complement-fixing antibodies occurred in all calves. Two calves died from the artificially induced anaplasmosis.

The Anaplasma carrier state in these 3 deer persisted 11 months following infection, suggesting that it is as permanent as in cattle. The criterion for diagnosing the bovine carrier of anaplasmosis is a complement-fixing antibody titer of 4+ at a 1:5 serum dilution or higher, but this diagnostic test is not applicable to determination of carrier infection in the Columbian black-tailed deer. In this experiment, deer carriers had titers of 0, 1±, and 2+ at the 1:5 dilution of serum (table 1). During the period of rise and fall of Anaplasma bodies in experimental infections, deer always showed an antibody response with titers as high as 1:320. However, antibody levels receded rapidly, and titers fell below the diagnostic level 4 months after experimental infection. This observation has been confirmed by tests performed on blood from wild deer which had acquired a carrier status from natural infections.[3,4] The fact that carrier deer in the wild state varied from 8 or 10 months to 6 years of age indicates that age imposes no limitation on the carrier status. With opportunities for reinfection that occur under natural conditions, it appears likely that deer remain infected permanently.

Summary

Three Columbian black-tailed deer (*Odocoileus hemionus columbianus*) were shown to be carriers of *Anaplasma marginale* approximately 11 months after they were infected with blood from bovine carriers. Three splenectomized calves inoculated with blood from these deer developed anaplasmosis characterized by severe clinical manifestations, relatively high percentages of erythrocytes containing Anaplasma bodies, and marked increases in complement-fixing antibodies.

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Encephalitis in Holstein-Friesian Heifer

A 1½-year-old Holstein-Friesian heifer had been unable to open her mouth to eat for about 4 weeks. Under conditions of force-feeding, she gained weight for 2 weeks, then had a violent seizure and died within minutes. Necropsy revealed encephalitis and an abscess the size of a golf ball in the brain tissue. Coliform and Corynebacterium organisms were isolated from the abscess. —*Maine Vet., 21 (1960): 5.*

A New Look at

Tuberculosis Eradication

in Michigan

Asa WINTER, D.V.M.

THE STATE OF Michigan had the first county accredited for tuberculosis eradication and was listed as the third state to receive complete accreditation status. Why, with this background, should this state now be reporting more than 30 per cent (fig. 1) of

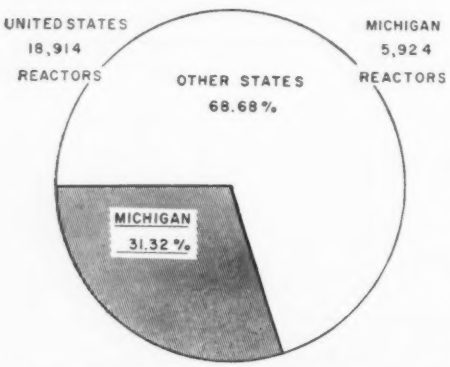

Fig. 1—Percentage of the nation's bovine tuberculosis reactors in the United States and Michigan for the fiscal year 1958-1959.

the nation's tuberculosis reactors? Surely, in fairness to the industry and to the general public, this situation rates "a new look."

When the state became accredited in 1930, approximately 0.5 per cent of the cattle tested were reported as reactors. During the next 10 years, while the remaining states were reaching accreditation, an intensive testing program was conducted in Michigan, and there was a constant decline in the infection rate to a low of 0.1 per cent. However, following accreditation of the nation in 1940, our people in Michigan apparently accepted the general national attitude that a minimum testing schedule would now complete the job. For the next several years, the volume of testing in Michigan was reduced drastically, and the percentage of reactors increased gradually. By 1954, reactors had increased to such a number that the problem was again thoroughly reviewed (fig. 2).

The cut-back in testing was responsible for unidentified pockets of infection building up and serving as centers for spread of the disease. The limited testing program was responsible also for the failure of certain cooperating veterinarians to conduct an effective program. Retesting of infected herds was not carried out consistently; quarantines were not properly maintained; and there was a tendency to evaluate the test on the basis of meat inspection reports rather than necropsy reports.

It was agreed that, to solve this growing problem, one of the first requirements would be reeducation of the public and the veterinary profession on the economic and public health significance of this resurging disease. It was also agreed that all herds during county reaccreditation would be accounted for and, within the limit of available funds, subjected to test. The results of a farm-to-farm survey previously conducted in connection with the Brucella ring test (BRT) were used as basic herd inventory. With this information, total herd numbers and locations were established, and township listings were prepared on the rapid-processing machine-accounting system for distribution to area veterinarians to enable them to make assignments for reaccreditation testing.

To fulfill requirements of the program, veterinarians must be fully apprised of the

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This article is based on a presentation given at the Section on Public Health and Regulatory Veterinary Medicine, 96th Annual Meeting, American Veterinary Medical Association, Kansas City, Mo., Aug. 25, 1959.

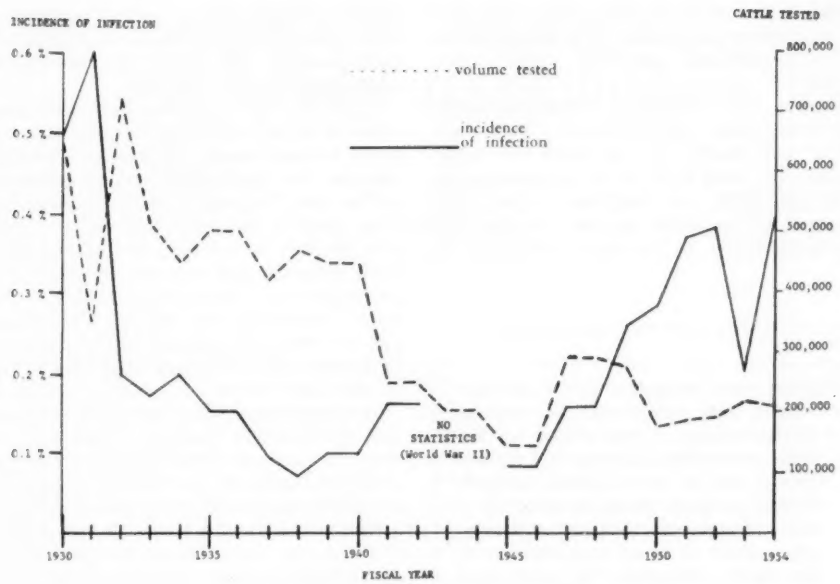

Fig. 2—Bovine tuberculosis in Michigan.

true situation, and proper application of the tuberculin test must be assured. Counties approaching reaccreditation date are now opened 6 to 8 months ahead of the actual time, and the tuberculosis project leader, along with the district and area verterinarian, meets with the fee-testing veterinarians for a complete explanation and study of current policies and procedures, before initiating the project. The district veterinarians have been given special training in accepted testing techniques, and they, in turn, provide this information to the area veterinarians under their supervision, to assure uniform practices in the testing program.

Tuberculin-testing demonstrations on sensitized cattle are conducted at the time of the veterinary short course at Michigan State University, to acquaint senior students with standard techniques and interpretations, and also for the benefit of attending veterinarians. This clinical demonstration is a follow-up of the classroom portion of instruction provided for the students by our tuberculosis project leader as part of the regular curriculum on infectious diseases.

The classroom training explains the national and local situation with a full review of financial and public health aspects. It is intended to impress near-graduate students with the significance of tuberculosis infection and their share of responsibility for eradication. Additional class periods deal with testing techniques and program procedures. Program manuals with complete informational material, including copies of all program paper forms, are fully reviewed and distributed to each student for future use.

Nearby areas due for reaccreditation are assigned to the veterinary college as a part of the ambulatory clinic operation to give field background for the students. The veterinary clinicians cooperate closely in student training by following recommended procedures.

Upon graduation, an applicant for accreditation is required to work with his local area veterinarian on actual program work to confirm his techniques and understanding before receiving accreditation approval. The time requirement is determined by the supervising veterinarian, who, upon completion of the training, approves the

applicant for participation. This same type of orientation and approval is also required of veterinarians entering from other states.

Under the Michigan rapid-processing record system, pre-addressed and fully coded test charts are provided the veterinarian for each herd in his assigned area. Until all charts are completed either with a report of the herd test or a signed and dated statement on the chart indicating the disposal or movement of the herd, that area is not approved for reaccreditation.

Regular meat inspection is in full conformity with requirements for assuring wholesomeness of the product for human consumption, but reported findings should not be considered as complete necropsy reports or as confirmation of the tuberculin test. The service is properly entitled as "meat inspection" but is improperly interpreted by many as a confirmation of the test.

In addition to getting herds accurately tested during the reaccreditation period, every effort is made to locate possible sources of infection responsible for reactors in currently infected herds, and to identify those herds which may have received cattle from this reactor herd. Michigan has developed a brief form for use by the testing veterinarian in obtaining this information.

Because of the increasing number of reactors and the high percentage of no gross lesion (NGL) cases, more study is indicated. This is of special public concern, as well as a problem for the industry, because of the cross-relationship between the human and bovine types of infection. In Michigan, those herds in which animals with gross lesions are revealed, and those with continuing NGL records, are referred to the State Department of Public Health with full background information. The reporting form also provides for a space report regarding the results of a family survey, a copy of which is returned by the public health officials for program information. This procedure has been initiated only quite recently, but promises to develop into a mutually valuable service.

In order to cover the field and assure removal of all infection, the Michigan program follows closely the recommended procedures for application and interpretation of the test. We wish to make it clear, however, that it is not our intent to conduct this project as a purely mechanical procedure, because past experience confirms the importance of exercising professional judgment. However, all testing veterinarians are directed not to overlook any tuberculin responses. Where these may be of such nature that there is question as to final interpretation, involved animals are identified on the test chart as "suspects" with type of response identified. They are held under quarantine for 60-day retest by a regularly employed program veterinarian.

While it is true that the incidence of NGL reactors is high, some heavily infected herds with animals with gross lesions are still being found. Now, in conformity with a recent directive, provision is being made for part-time supervision of reactor inspection at nonfederally inspected slaughtering establishments, by a trained program veterinarian, in full accord with meat inspection regulations. It is believed that a more intensive inspection, as demonstrated at the 1958 National Tuberculosis Conference held at Michigan State University, would tend to lower the NGL figure.

Because of the growing problem and the fact that we do not have information on all factors responsible for the current situation, a research contract and a cooperative agreement between the Agricultural Research Service and Michigan State University were recently approved for additional study and research on tuberculosis. Possible sensitizing factors and serologic test studies will also be carried out. It is agreed that a minimum of 3 years will be required to complete this study. While it is expected that results of the project will provide information of great added value, the Michigan testing program will be continued without interruption.

The tuberculosis eradication program in this state is designed for eradication of the disease, and not merely as a survey procedure to assure that the incidence of infection is holding within the accepted maximum for "accreditation" status.

The Present and Future of

Artificial Insemination

H. A. HERMAN, M.A., PH.D.

THE FIRST organized artificial insemination (AI) program for dairy cattle started in May, 1938, as a cooperative in New Jersey. The second started in June, 1938, at Hughesville, Mo. Even then, the program worked and it has been growing since.

In 1958, there were 6,645,568 cows in 975,372 herds on an organized artificial insemination program. This amounts to 30.8 per cent of the nation's milk cows. The increase for 1958 over 1957 was 9.3 per cent in total cows. As of Jan. 1, 1959, there were 66 semen-processing organizations in the United States.

When the program started in 1938, there were only 7,359 cows in 646 herds enrolled. In the past 20 years, the volume of cows inseminated has increased about 1,000 per cent. No other modern day agricultural practice exceeds the growth of artificial insemination except hybrid seed corn, which is now about 99 per cent utilized.

As a nation, we lead the world in total cows inseminated, but percentage-wise, Denmark (nearly 100%), Japan (93%), Holland (65%), and England (over 50%) lead us by a wide margin. We believe the program in America will expand steadily in the years ahead.

Why Artificial Insemination Succeeds

Artificial insemination succeeds because: (1) Service to superior bulls is furnished at $5.00 to $8.00 per cow. (2) The dangers (1 person is killed every 4 days by bulls) and cost of a bull are eliminated. (3) Venereal diseases, such as, vibriosis, trichomoniasis, vaginitis, and brucellosis, spread by natural mating, are controlled. Leptospirosis is also curbed in its spread. (4) Older and proved sires can be used for heifers with no danger of injury. (5) Selected matings can be made with the best bulls in the country.

How the Program Works in the United States

There are 66 bull studs in the United States. They provide most of the semen used in the artificial insemination program. With the development of frozen semen, more purebred breeders are providing semen to artificial insemination organizations from their best sires. More purebred breeders are likewise making special matings.

The bull studs employ about 8,000 technicians who inseminate over 6.4 million cows. These men are well trained. Their job is cattle improvement. They are forbidden to carry on any practices that belong in the veterinary field. Generally, technicians and veterinarians cooperate closely on "problem breeding" cows.

The artificial insemination program in America is one of free enterprise. About two thirds of the cows are serviced by farmer-owned cooperatives and the remainder by privately owned and operated bull studs. Purebred cattle inseminated, and the bull studs and technicians involved, are subject to provisions of the Purebred Dairy Cattle Association.

The artificial insemination organizations are banded together in a national association—the National Association of Artificial Breeders, Inc., Columbia, Mo. The purposes of this organization are many, but empha-

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sis is placed on research, education, regulations, and public relations. Few state and no federal regulations are in effect. Through its national association, the artificial insemination industry "polices itself."

In cooperation with the American Veterinary Medical Association, a rigid code of "sire health regulations" was set up several years ago and is religiously observed. Transmission of disease in livestock is one evil the artificial insemination industry has avoided thus far.

Beef to Grow

About 12 per cent of all inseminations in 1958 were with beef bull semen. This use was confined largely to milk cows and cattle of mixed breeding. Artificial insemination in beef cattle in commercial herds is destined to grow. The reasons are: use of performance- and progeny-tested bulls, better conception rate, better control of disease, and improved breeding at a minimum cost. Many purebred beef herds use artificial insemination for these reasons. The beef registry associations, however, will not register off-spring unless the owner of the sire and dam are the same. Present rules permit 3 to 4 owners of a sire and most purebred beef breeders are little handicapped.

Looking at the Future

The members of the National Association of Artificial Breeders are research minded. Over 20 research projects, dealing with reproduction problems and all phases of semen processing, storage, and use, are underway. In the future we may find: (1) Semen stored for years in the frozen state. We have calves now obtained by semen stored over 4 years. (2) Semen may, in the future, be preserved in the dried state at low temperatures. So far, this research has not been too fruitful, but it is being continued. (3) Semen may be treated so a herd owner can order a male or female calf as he chooses. Results are now nearly 80 per cent accurate in rabbits. (4) There will be a marked increase in the use of artificial insemination for swine, sheep, horses, dogs, turkeys, and milk goats.

Research paves the way for new techniques in this field. The next 20 years is certain to bring amazing changes as has been true these past 21 years.

Pulmonary Aspergillosis in Lambs

Seven cases of pulmonary aspergillosis in lambs have been reported in England. The organism, *Aspergillus fumigatus*, was recovered from lung lesions in all 7.

Little is known about the clinical manifestations of the disease since most of the cases involved were concurrently affected with some other condition. However, 1 lamb had a subclinical infection which indicates that healthy lambs may be able to overcome infection. It also may explain why it is difficult to reproduce the disease experimentally in healthy lambs. Lung lesions varied from extensive congestion of both lungs to presence of scattered numerous grayish white nodules. Presence of lesions of different ages in the same tissue indicates continuous infection or spread from lesions already present. The lesions closely resembled those attributed to *Muellerius capillaris* infection.—*Vet. Rec., 72, (1959): 19.*

Meat Inspection

A Local Necessity

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E. H. ELLINWOOD, M.D.
Martin P. HINES, D.V.M.

THE PURPOSE of local meat inspection is to provide the consumer with disease-free meats produced under sanitary conditions. To secure this objective, all meats, not federally or state inspected, should have county or municipal inspection.

Most of the public believe that all meats are adequately inspected and safe to eat. An examination of the facts proves otherwise. Local "meat inspection" in many counties is limited to sanitary inspection of the establishments by local health department sanitarians at quarterly intervals. These inspections are valuable but deal mainly with building structures, equipment, and sanitary processing procedures rather than inspection for wholesomeness.

Few plants producing meat for local consumption receive inspection under a state voluntary inspection system because the entire cost must be paid by the packing plant, and many plants are too small to afford inspection. Several organizations are investigating practical means and methods for providing compulsory state inspection financed by tax funds.

Meat Inspection Principles

Effective meat inspection is conducted in 3 phases: (1) antemortem examination of animals before slaughter on the day of the kill; (2) postmortem examination of the viscera, head, and organs on the slaughter floor including the incision of specific glands and carcass surfaces; and (3) examination of all processes used in manufacture and reinspection of meats ready for market. In all phases, attention is given to sanitary handling of meats and meat products including utensils, tables, clothing, and other equipment which might contaminate the product.

Growth of Slaughter Operations

Twenty years ago, cattle raising in many areas was limited and represented a small percentage of meat consumed. Most "native meat" was slaughtered by butchers for sale in their small shops. During the last decade, the growth of the cattle industry has been phenomenal. This has been followed by rapid expansion of local packing plants. The thousands of animals slaughtered locally represent millions of dollars in investment. In areas without inspection, it means that millions of pounds of meat may reach the retail counter with little assurance that such meats are disease-free and uncontaminated.

Housekeeping

Housekeeping conditions found in plants with no inspection, where inspectors are untrained, or the plant owner or manager is the inspector, often leave much to be desired. Many plants have no rules; others are brief and practically worthless. Unsatisfactory conditions observed in these inadequately supervised establishments are: poorly constructed buildings in need of repair; wooden topped tables pitted and

*Based on a presentation given before Health Directors Section, North Carolina Public Health Association, May 29, 1958, Raleigh.

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difficult to clean; utensils made of poor material and impossible to clean; viscera dragged over the floor amid blood and excrement; dirty and poorly constructed racks, hooks and rails; rooms inadequately ventilated; meats washed in tubs of water; inadequate lavatory facilities; dirty employee clothes; stagnant air and excessive moisture in coolers; dirty shrouds and pins; improperly constructed barrels and boxes; offal stored in open containers where flies are prevalent; inadequate control over treatment of trichina; and lack of sterilization facilities such as steam and hot water.

Dumping in Areas Not Under Inspection

Conditions and diseased meat retained by lay inspectors for final disposition by the veterinarian under local conditions correspond roughly to conditions under federal inspection. Carcasses are condemned for pneumonia, enteritis, pericarditis, pyemia, edema, leukemia, stephanuria, etc., and thousands of parts are condemned for abscesses, bruises, actinomycosis, and other local lesions and conditions. If such conditions and diseases are prevalent in an area under inspection, many more diseased carcasses and parts would be marketed in areas without inspection. The buyers of livestock are careful to buy only animals which might be passed on the slaughter floor. The sick and lame are rejected as well as those with lumps, carcinomatous eyes, discharging nose or eyes, etc., and await the buyer who will take them at a low price for slaughter at a noninspected establishment. Consumers of these meats not only risk the danger of eating unsafe meats but are cheated, since this meat usually is placed in competition with safe meats at approximately the same price.

Using meat from boar hogs in highly spiced meat products such as cold cuts containing garlic, peppers, etc., is practiced where there is no inspection. Under inspection procedure, the farmer is asked to take the boar back to the farm and have it castrated. Later it can be brought back and purchased without discrimination. When an uncastrated boar is presented for inspection on the slaughter floor, the meat is heat-tested and condemned in a high percentage of the cases.

Some Unsound Practices in Local Programs

Any situation, either independently or with approval of inspection authorities, where an inspector is employed and paid directly by the packer, or where the inspection authority pays the inspector after receiving funds from the packer, is usually unsound. In either case, the inspector knows the people who pay his salary.

Many lay inspectors have not had adequate training. Very few carcasses condemned show lesions in or on the carcass. Condemnations are generally based on indications that disease or products of disease have reached the meat through the systemic circulation. The lay inspector who has not been trained in incising and palpating glands on postmortem examination, and who does not have a veterinarian to make final decisions, is unlikely to find anything to discard. This suits his employer. Another practice dangerous to the consumer but frequently encountered is an "inspection" done at "4 o'clock" in the afternoon by a veterinarian who sees only heart, lungs, and liver hanging on a rack in a cooler with a line of carcasses ready to be stamped. The viscera has been discarded along with lesions of pyemia, enteritis, metritis, carcinoma, and others. Such inspection procedure is worse than no inspection since the consuming public is given a false sense of security.

Organization of a Local Program

Guilford County, North Carolina, serves as a prime example of how a local meat inspection program was organized. The director of the health department, impressed with the necessity for an efficient meat inspection program, secured a veterinarian experienced in federal inspection to organize the service. Regulations were drafted and reviewed by the health director, state public health veterinarian, and the Institute of Government (University of North Carolina) before adoption by the County Board of Health. Lay inspectors were employed and trained following approval of job classification by the Merit System Council. Major requirements were a high school education and a year of experience with the livestock or meat industry. Instructions on meat inspection procedure (slaughter and nonslaughter) were devel-

oped, including forms for reports to the health department on animals slaughtered and condemnations of carcasses and parts. Lay inspectors were trained and supervised by the health department veterinarian who also made spot inspections at unscheduled times at 5 establishments which do not slaughter. The veterinarian also inspected the unloading of refrigerator cars from out of state which supply local stores.

The "Farmer Plan"

It has been customary for Guilford County farmers to kill heavy hogs and crippled cattle on the farm and bring the carcasses to the packing plant for dressing. Regulations requiring antemortem inspection stopped this practice. In order for farmers to continue to bring these carcasses (animals not dead of natural causes) to the packing plants legally, a provision was made for sending an inspector to the farm to certify antemortem inspection, or any licensed veterinarian could certify that such inspection was made. The following incident illustrates the necessity of this procedure: A farmer called and asked permission to bring a dead cow into one of the plants, stating that the cow had been "killed" by cutting her throat because she was suffering from bloat. When the "farmer plan" and required antemortem inspection was pointed out, he asked if it would be safe for his family to eat the meat from this cow. Later that day, a local veterinarian called to inquire if the farmer had called the health department about disposition of this cow. He stated that the cow was dead when he arrived and her throat had not been cut!

The "farmer plan" is working well. Letters explaining the plan were sent to county agents, veterinarians, and truckers. It has enabled farmers to have heavy carcasses dressed in a professional manner and to sell the meat anywhere in the state. It prevents bootlegging of farm meats and bad publicity for plants which receive these carcasses. The enthusiasm for the plan is attested by farmers who have used this service and by members of the Board of County Commissioners who have been generous in their praise of the program. The farm plan was put into effect immediately following adoption of the inspection program and has to a large extent been responsible for keeping improperly inspected meats off the market. The fact that the entire program is financed by public tax funds rather than industry is one of the controlling factors which has made it workable. It is gratifying that not a single complaint has been received since the program was inaugurated. Furthermore, there is no additional cost to the county for the farm plan because this service is usually handled by meat inspection staff.

Reciprocity Questionnaire

Early in 1958 the Guilford County Health Department became concerned over the inspection status of meat and meat products imported from other counties. A practical solution seemed to be an agreement between counties where inspection procedure was comparable. A questionnaire was mailed to several counties requesting information relative to inspection procedures. Pertinent questions asked were: Does a veterinarian decide on all cases of disease and does a lay inspector see all eviscerations? Enthusiastic replies were received and all agreed to accept Guilford County meats. The "4 o'clock" inspection previously mentioned was evident in many replies and meats from only 12 of 28 counties responding could be accepted. The questionnaires provided valuable information and awakened many surrounding counties to the need for better inspection. Even more important, it assisted in clearing local retail shelves of uninspected and unsafe meats and served to protect local packing plants from unfair competition.

Summary

There is a need for local meat inspection. Some advantages are: (1) meats from diseased animals will not be processed for human food; (2) meats and meat products will be handled and processed without contamination; (3) proper labels, ingredients, and cooking methods will be used; (4) local plants will be protected from unfair competition of uninspected meats and consumer confidence will increase the consumption of nutritious meat food products.

Meat inspection without antemortem examination on the day of slaughter and

without postmortem examination of the carcass and parts at time of evisceration by a trained lay inspector working under the supervision of a veterinarian is little more than a "meat stamping" program which gives the public a false sense of security. The veterinary profession must take the lead in pointing out the dangers of this type program to interested public officials and, of course, avoid becoming a part of it.

A need exists for compulsory inspection in most states. The North Carolina Meat Packers Association and the North Carolina State Veterinary Medical Association have been active in obtaining support for a program financed with tax funds which would require inspection of all meats shipped intercounty. Until strong state-wide programs are developed, efficient local inspection will remain a public health necessity.

Ionizing Radiation

and Food Hygiene

Robert K. SOMERS, D.V.M.
Robert H. PHILBECK, B.S.

WHEN THE FIRST atomic device was detonated, scientists and others began immediately to plan for the peaceful uses of nuclear energy.

One of the first uses considered was that of irradiating foodstuffs to destroy disease- and spoilage-producing bacteria. The scope and cost of such a project was so immense that private industry did not have the means to undertake it alone. Because of this limitation and because of the possibility of using such a means for producing fresh-tasting food for military personnel, the Department of Defense sponsored studies on irradiation preservation of foods.

For the past several years many educational institutions and private companies have been investigating all phases of the preservation of foods by irradiation. Animal feeding studies vary widely in scope and nature. As in the past, they are being conducted to establish conclusively the safety or hazard of consuming irradiated foods.

Many bacteriologists are studying the effects of *beta* and *gamma* radiation on bacteria. The cause and prevention of adverse effects of irradiation on the texture, flavor, odor, color, and nutrients of foods is the object of extensive basic research. Toxicity studies have now progressed to the stage where short-term feeding studies with human subjects have been undertaken. Several volunteer groups have been fed irradiated foods to obtain an objective opinion about the palatability and general acceptability of the treated items. Many questions have been answered satisfactorily, and the outlook for favorable results is encouraging.

The preservation of food by treating it with *beta* and *gamma* radiation offers distinct advantages. Foods preserved by irradiation can be shipped and stored for relatively long periods without refrigeration. Those whose diet has been limited to cured or canned foods can include in their diet items having a flavor more nearly like that of fresh food. Destruction of fertility

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in live trichinae in pork muscle tissue by relatively low amounts of radiation appears to offer a potentially valuable application of the process.

It may be necessary to modify some of the original objectives if nuclear energy is employed for the preservation or pasteurization of food. For instance, the high intensity radiation necessary to destroy enzymes and *Clostridium botulinum* will impair color, texture, odor, and flavor of food in most cases. Therefore, a combination of low heat for destruction of the enzymes, a medium level intensity of radiation for bacteria destruction, and some means of preventing botulism toxin production can be used to circumvent the undesirable effects of high intensity radiation.

Since it has been determined that the degree to which the flavor, odor, texture, and color is altered by *beta* and *gamma* radiation varies with different foods, there may be only a limited number that can be successfully preserved in this manner. The addition of vitamins to supplement foods preserved by irradiation may also be necessary.

Although the Department of Defense has the most active interest in this new method of food preservation at present, private industry is expected to be ready to offer to the civilian population foods preserved by nuclear radiation as soon as the procedure has been declared to be safe and otherwise acceptable by the Meat Inspection Division of the Agricultural Research Service, Department of Agriculture, and the Food and Drug Administration of Department of Health, Education and Welfare. We do not believe that we are being overly optimistic in anticipating that many foods will someday be successfully preserved by the use of *gamma* or *beta* radiation; however, we do not expect this goal to be achieved within the next 2 or 3 years.

It is considered especially important for veterinarians to develop and maintain competency in this comparatively new science. It will be the responsibility of veterinarians to evaluate the effects of radiation on living animals and on the food materials derived from them.

Therapy of Equine Parasitosis

The following table was taken from the March 31, 1960, release "Research on Parasitic Diseases of Horses," by J. H. Drudge, D.V.M., Kentucky Agricultural Experiment Station, and Mr. Clarkson Beard, president of the Grayson Foundation, Lexington, Ky.

TABLE 1—Percentage Removal Activity or Control Value of Common Anti-Parasitic Drugs in the Horse

		Phenothiazine		Piperazine[1]		Phenothiazine + Piperazine Combination[2]	
Parasite	Carbon disulfide (1917)	2.5 Gm./cwt (1941)	Low-Level (1946)	Pip-CS_2[3] complex (1956)	Other salts[4] (1955)	Pheno. + complex[3] (1959)	Pheno. + other salts[4] (1958)
Bots	95-100	0	0	75-85	0	75-185	0
Ascarids	50-100	0	0	95-100	95-100	95-100	95-100
Strongyles							
Small	0	80-90	95-100	85-95	85-95	95-100	95-100
Large							
S. vulgaris	0	60-70	95-100	50-60	50-60	85-95	85-95
S. edentatus	0	40-50	95-100	0	0	70-80	70-80
Pinworms							
Mature	0	0	0	70-80	70-80	75-85	75-85
Immature	0	0	0	10-20	10-20	10-20	10-20

[1]At doses delivering 40 mg. piperazine base/cwt. [2]At doses delivering phenothiazine at 2.5 Gm./cwt and piperazine base at 4.0 Gm./cwt., [3]Piperazine-carbon disulfide complex or Parvex (Upjohn). [4]Other members of piperazine, group, e.g. adipate, citrate and dihydrochloride.

Experimental Production of Frothiness of

Reticuloruminal Contents

—Its Significance as a Possible Cause of Bloat

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Malcolm CRUMP, B.S., D.V.M.
Katherin PENN, B.A.
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SEVERAL investigators have suggested that frothing of reticuloruminal contents is associated with bloating of cattle fed fresh legumes.[1] When fed fresh legumes, cows with ruminal fistulas showed that periods of excessive frothing accompany periods of increased viscosity of ruminal contents.[2] In animals which eat well, periods of excessive frothing can be induced by feeding soilage of fresh young legumes clipped during periods of rapid plant growth, exceptionally leafy alfalfa hay, ground roughage, shattered leaves of dry alfalfa hay, small pellets of ground roughage, ground or cracked corn without roughage, or many combinations of concentrate feeds without an adequate supply of true roughages.

Nonvolatile organic acids, relatively abundant in fresh young alfalfa, increase rate of frothing and volume of froth by a rapid evolution of CO_2 (carbon dioxide) when they are added to samples of ruminal digesta *in vitro*.[3] None of these acids can be demonstrated chromatographically in ruminal fluid, even in samples taken immediately after eating. This suggests their immediate conversion after the plant material is ingested.

Bovine saliva is a source of carbonates for the release of CO_2. Plant material may be a source also, particularly after the acids have been converted. Since any acid should liberate CO_2 from carbonates, it was decided to ascertain whether the intraruminal administration of a quantity of carbonate approximating a day's addition to the rumen from saliva, and the subsequent administration of a quantity of citric acid approximating the nonvolatile organic acid content of a day's intake of fresh alfalfa, would induce an increase in intraruminal frothing.

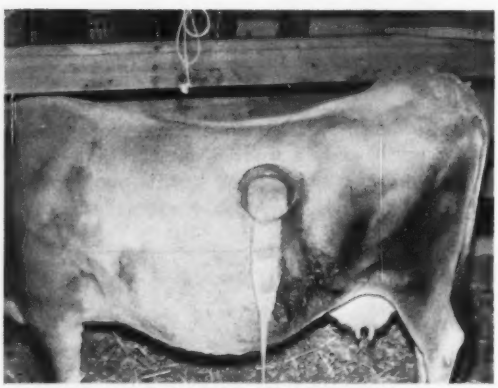

Fig. 1—Intraruminal froth produced by carbonate and citric acid.

Sodium carbonate, 100 Gm. in a liter of water, was introduced through a ruminal fistula into the ventral ruminal sac of a cow before the morning feeding of hay. This was followed immediately by 100 Gm. of citric acid in a liter of water. A complete reaction of the 2 *in vitro* would liberate about 21 liters of CO_2.

From the Wisconsin Agricultural Experiment Station at Madison.

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Contribution from the Wisconsin Agricultural Experiment Station as a collaborator under the North Central Regional Corporative research project (NC27) entitled, "The Causes and Control of Bloat in Ruminants."

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Sodium carbonate and citric acid introduced in the above manner can produce an immediate frothing of reticuloruminal contents *in vivo* (fig. 1). However, the froths which were produced in this manner broke rapidly and did not result in volumes of froth of the magnitude occasionally observed during the feeding of fresh legume tops. Doubling the doses failed to induce sustained volumes of froth. Similar treatment of the cow when it was fed fresh alfalfa resulted in frothing also, but again not of the magnitude occasionally encountered during the feeding of fresh legume tops. Similar treatment in an intact animal caused no evidence of discomfort.

It is obvious that the production of the froth resulted from the sequence and rapidity of administration of the compounds and from the fact that they were introduced into the ventral sac below the digesta where bubbles of the gas would have to pass through the digesta to reach the surface. One should not assume that compounds of this nature produce all the CO_2 for the gas in cows with field cases of legume bloat, until the contributions to the formation of froth of other metabolic pathways of CO_2 production are ascertained also.

These results show that rapid production of CO_2 is not the sole cause of excessive frothing of legume bloat, and that some other alteration of the digesta, such as an increase in viscosity, must accompany rapid gas production before the froth produced can be of sufficient stability and volume to result in bloat.

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Veterinarian Contracts Anthrax from Bull

A case of anthrax in a Kansas veterinarian was reported in May, 1959, apparently the result of contact with an infected bull. The infection was characterized by fatigue, malaise, and a "swollen" feeling. A lesion on the right forearm and lymphadenopathy in the right axilla developed a week later. Antibiotic treatment healed the eschar on the arm in a month and the patient recovered.—*Morbid. and Mortal. Rep., U.S. Dept. Health, Education, and Welfare. 8, (July 17, 1959): 2.*

Staphylococcic Infection in Cattle Contracted from Man

Two herds of dairy cattle owned by a farmer in Kentucky became infected (superficial skin lesions) with a strain of antibiotic-resistant staphylococci (phage type 80/81). The first herd, sold by the farmer because of the infection, had recovered spontaneously upon removal to new premises. It was found that the farmer and 2 other adults on the farm were nasal carriers of phage type 80/81 staphylococci.—*Morbid. and Mortal. Rep., U.S. Dept. Health, Education, and Welfare, 8, (Nov. 14, 1959): 2.*

Multicatheterization of Blood Vessels of Sheep

for Metabolic Studies of Insecticides

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R. D. RADELEFF, D.V.M.
W. B. BUCK, D.V.M.

THE SUBJECT of insecticide metabolism in livestock is steadily commanding increased interest and importance to research workers in the insecticide field. Modern insecticide development has been based to a large degree upon a knowledge of the effects of the compounds upon insect metabolism and upon the metabolic pathways used for their destruction. The use of radioactive isotopes has been extremely helpful in studies of this nature when they have been used as labels for various portions of the molecule. Metabolites of these labeled compounds can be studied by such techniques as chromatography, electrophoresis, and autoradiography.

In mammalian metabolism studies, the blood has been of major interest. In most instances, such studies have been made using blood taken from the peripheral surface veins, primarily because of the ease with which blood samples can be obtained. This practice makes certain that in most instances the substances identified represent the final metabolic breakdown products. The intermediate products and the organ or organs that produce them are not determined.

In an effort to increase the understanding of metabolism deep within the body, a technique for multicatheterization of blood vessels was developed and is given in this paper. Our belief that such a technique would be useful has been justified by results obtained in studies (unpublished) of metabolism of one particular insecticide in which marked differences in number and relative proportions of metabolic products were demonstrated.

To assure a relatively normal situation, the surgery was planned so that the test sheep would be expected to survive after surgery and study, and that anesthesia would be the main deviation from normal.

Procedure

Catheters.—Pieces of highly flexible polyethylene tubing, 0.025 inch inside diameter, 0.033 inch outside diameter, and 18.0 inches long, were used for catheters. One end of each catheter was beveled to 45 degrees (fig. 1) to allow for easier penetration of the vessel. A piece of No. 2 braided silk was tied to each tube about 1½ inches from the beveled end, leaving the 2 ends long enough for easy tying. The silk was fixed in place on the tubing with a drop of flexible collodion. After the collodion was thoroughly dry, the catheters were placed in a 1:1,000 aqueous solution of merthiolate for 24 hours.

Preparation of Patient.—Water and feed were withheld from the sheep for 24 to 36 hours before surgery. Dextrose (5%), 5 cc. per pound of body weight, and a combination of sulfonamides (sulfamerazine 3%, sulfapyridine 4%, and sulfathiazol 6%), 1 cc./4 lb. of body weight, were given intravenously 1 hour before surgery. Wool from a large area surrounding the last rib on the right side was clipped closely and the skin was cleansed with ether. A 1:1,000 aqueous solution of merthiolate was used as a skin bacteriostat.

Anesthesia.—Sodium pentobarbital was administered intravenously very slowly until the sheep ceased to resist, but administration was stopped before deep anesthesia was produced. The sheep was placed on its left side and draped.

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A 2 per cent solution of procaine hydrochloride was then used to infiltrate subcutaneously and intramuscularly along a line parallel to and 2 inches behind the last rib, beginning just below the lumbar processes, and continuing ventrally for 8 inches.

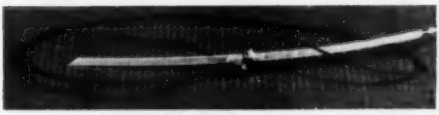

Fig. 1—Flexible polyethylene catheter with attached suture and beveled end used to penetrate blood vessel. x 2.

The combination of light general anesthesia and full local anesthesia greatly decreased the possibility of undesirable side effects due to anesthesia.

Surgical Procedure

An incision was made through skin, external oblique, transversus, and internal oblique muscles, and peritoneum. The edges were retracted and hemorrhage controlled. The rumen, covered by omentum, is usually distended with gases. These gases were removed by a vacuum pump apparatus to provide more working area in the abdomen.

Each of the catheters was placed through the abdominal wall along a line 1 inch anterior and parallel to the incision. This was accomplished by threading the blunt end through a 14-gauge hypodermic needle placed through the abdominal wall. The needle was removed, leaving approximately half of the catheter within the abdominal cavity.

The hepatic vein was catheterized first because of its inaccessibility and distance from the incision. The right lobe of the liver was displaced posteriorly, revealing the hepatic vein as it leaves the liver and enters the vena cava. The vein wall was penetrated with the point of a suture needle as close to the liver as possible. The beveled end of a catheter was passed through the opening until approximately 1 inch of catheter lay within the vein. When the puncture was small, the catheter fit snugly allowing only a small amount of hemorrhage. The previously affixed silk was then used to anchor the catheter to the diaphragm close to the vein. It is important that the catheter be firmly secured, because it can be easily pulled out of the vein and rendered useless.

If blood did not flow from the catheter, a sterile needle and syringe were attached to the tube. Blood was withdrawn to verify that the catheter was properly placed and functional. A solution of heparin, 500 units per cc. of 0.9 per cent saline, was injected through the entire catheter. The catheter was then clamped with hemostats at the extra-abdominal end to prevent clotting.

The portal vein was catheterized in a similar manner, penetrating about ½ inch from the liver. The catheter was secured to the liver capsule (fig. 2).

To place the renal artery and vein catheters, an incision was made in the peritoneum, which covers the right kidney, and the fat was dissected to expose the vessels. The catheters were placed as previously described, penetrating the vessels about ½ inch from the hilus, and sutured to the renal capsule. (Care must be taken to avoid injury to the kidney during these procedures.) The peritoneal incision was sutured after return of the kidney to proper position.

If desired, a fifth catheter may be placed in the gallbladder, penetrating it at the middle of the posterior surface.

Physiologic saline was used periodically during surgery to moisten visceral surfaces.

After a final inspection of the positions and patency of the catheters, the abdominal cavity and muscle edges were dusted lightly with sulfanilamide powder. The abdominal muscles were closed, using continuous sutures of braided silk. The skin was closed with mattress sutures.

The visible external portions of the catheters and the hemostats clamping them were secured to the sheep's side, using towel forceps sutured to the skin (fig. 3). A shield made from a double folded towel was taped over the sheep's side, covering the catheters and hemostats, to prevent accidental damage to them. This shield was removed at each blood-sampling period. With this type of protection, the sheep can be held in a small pen and allowed complete freedom.

Postoperative Care.—Following surgery, the sheep was given 250 cc. of dextrose (5%) intravenously, 600,000 units of penicillin G, and 0.75 Gm. of dihydrostreptomycin sulfate. Tetanus antitoxin, 1,500 units, was also given.

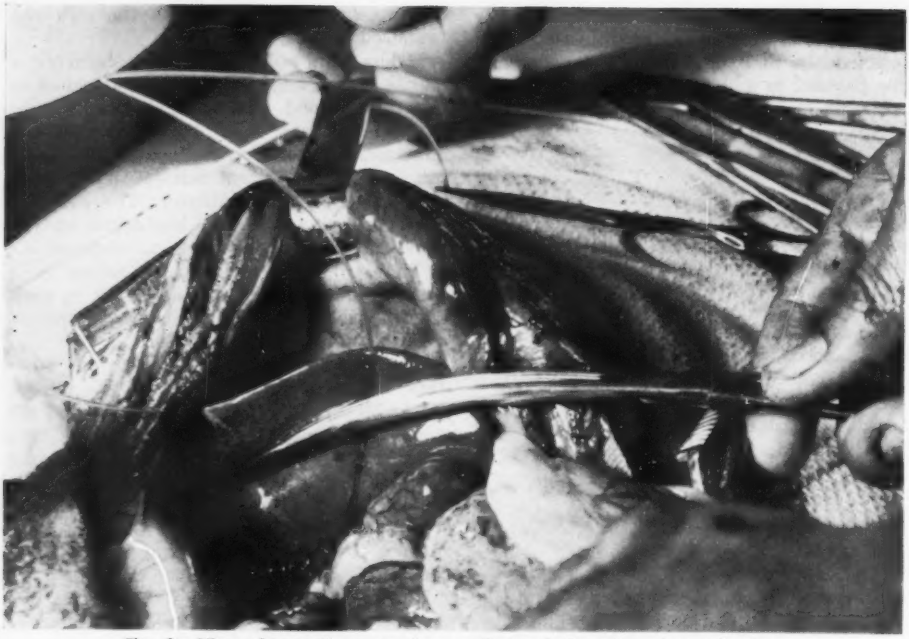

Fig. 2—View of operative area shows catheters in hepatic and portal veins.

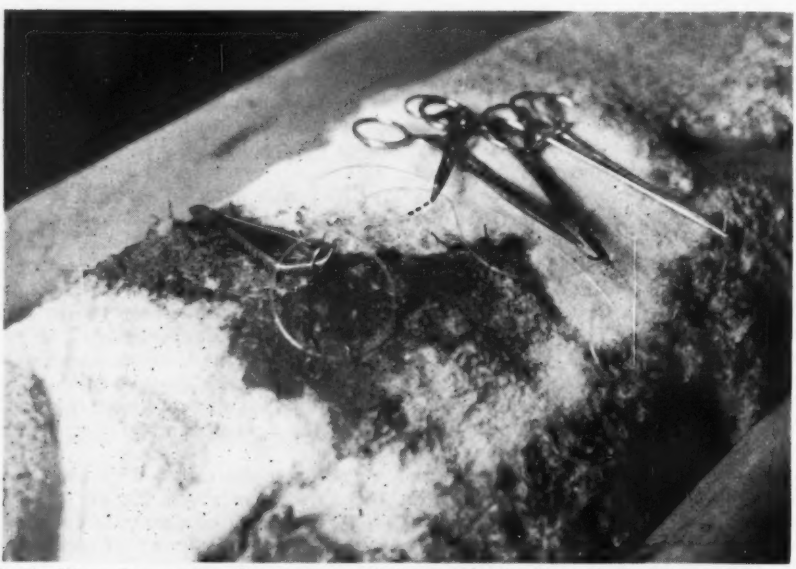

Fig. 3—View of area after closure of wound shows catheters clamped off with hemostats and towel clamp used to hold hemostats in place.

Discussion

In most cases, the sheep was conscious, hungry, and thirsty within an hour after surgery. At this time, the insecticide or other compound to be studied may be administered.

Blood and bile samples may be drawn simultaneously from the catheters, permitting study of the metabolites in blood obtained from 4 different locations, or 5 if a peripheral sample is taken from the jugular vein.

Blood samples may be obtained for as long as 7 days after surgery if the catheters do not clot or are not accidentally removed.

When the catheters are no longer needed, or after blood clots have formed, the external portions may be disposed of by putting slight tension on them and cutting them off close to the sheep's body. The tension of the internal portions will draw them back into the abdominal cavity where they remain virtually without tissue reaction.

Six sheep—5 ewes and 1 wether—have successfully withstood this procedure. At this time, 1 to 5 months after surgery, all are well and show no harmful effect of the procedure.

With catheters placed in a sheep in the manner described, one should be better able to determine the functions of metabolism carried on by the various internal organs. This technique may possibly be modified and applied to other species. It should also be helpful in nutrition and drug studies.

Summary

A surgical procedure for catheterizing the hepatic portal and renal veins and the renal artery and gallbladder of sheep has been devised, which permits study of chemicals in blood passing from the digestive tract to the liver, from the liver to the heart, and entering and leaving the kidney on a simultaneous basis. These samples, plus the bile, may then be compared with peripheral blood.

This procedure should enable better understanding of insecticide metabolism and may be applied to nutritional studies.

Survival of sheep is to be expected in all cases.

Emetic Action of Penicillin in Dogs and Cats

An emetic action of penicillin was determined in dogs and cats. The oral median emetic dose of benzylpenicillin potassium was 0.88 Gm./kg. in the cat and 0.85 Gm./kg. in the dog; for benzylpenicillin ammonium, it was 0.96 Gm./kg. in the cat. Vomiting began 5 to 45 minutes after intragastric administration and lasted approximately 1 to 5 minutes. The animals recovered completely, and no residual clinical effects were observed during the next month.

Premedication with chlorpromazine hydrochloride did not inhibit the production of vomiting by benzylpenicillin. In dogs, the oral median emetic dose was estimated to be about 10 per cent of the retained oral median lethal dose.—*Canad. M.A.J., 82, (1960): 195.*

Retinoblastoma in a Dog

A Clinico-Pathologic Report

H. C. GRICE, D.V.M., M.SC.
J. A. HUTCHISON, D.V.M.

RETINOBLASTOMA is a congenital malignant tumor arising from the nuclear layers of the retina. The condition is rare in animals;[4,6,10,12,14,17] 1 case has been reported in the dog.[4] At least 1,000 cases have been reported in man.[20]

In man, it is essentially a neoplasm of very young children. One author reports 75 per cent of the cases occur in children under 3 years of age.[1] Another states that over 90 per cent of the cases occur before the fourth year and mentions that it is bilateral in at least 20 per cent of the cases.[3] Its presence is obvious at birth or soon thereafter and it shows a distinct tendency to appear in families.

There is considerable evidence that retinoblastoma is a hereditary form of neoplasia.[11,20,24] Genetic theory holds that the disease is due to a dominant gene with isolated cases being attributed to mutation.[8,11] The rate of mutation of the gene responsible for retinoblastoma in man has been described.[18] However, in many of the reported family histories, it appears that the tumor may be transmitted as an irregular dominant trait affecting only a portion of the gene carriers. Yet, other families could be interpreted as exhibiting a simple recessive mendelian pattern.[8] Speculation as to the possibility of a genetic relationship existing for retinoblastoma in animals is precluded by the low reported incidence of the disease.

The nervous origin of these tumors was first suggested in 1864[19] and the tumor was clearly described in 1891.[9] Several interesting and descriptive reports have since occurred in the literature.[13,15,16,19]

Retinoblastoma was formerly designated "glioma," which inferred that the type of cell was derived from neuroglia. Wide variations in terminology of retinoblastoma existed for many years due to the fact that the tumor is essentially an embryonal multipotent new growth.[13] However, in 1926 the term "retinoblastoma" was suggested[23] and is in general use today.

It is now generally accepted that a retinoblastoma may arise in either the external or internal nuclear layers of the retina.[15] Although derivation from the outer nuclear layers is the more usual source of origin of retinoblastoma,[5] cases have been described in which genesis from the inner nuclear layer was demonstrated.[4,13]

For practical purposes, 2 types of retinoblastoma are recognized.[21] The common one is composed of highly undifferentiated retinoblasts; the other shows more differentiated cells in the spongioblastic series characterized by true rosettes. The undifferentiated retinoblastoma is composed of small round or polygonal cells with scanty, often almost invisible, cytoplasm which stains poorly. The cells are uniform in size and appear extremely undifferentiated. In the neuroepitheliomatous retinoblastoma, the primitive retinoblast is more differentiated and assumes the form of a primitive spongioblast. There is a tendency also for rosette formation.[21]

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The authors thank Dr. Leon Z. Saunders of Smith, Kline and French Laboratories for his translation and abstraction of the paper by Folger, and Mr. A. K. Cowper of the photographic laboratory for prints of the photomicrographs.

Case Report

History.—The owner of a 9-year-old, male Welsh Corgi noticed a blue-gray haze in the dog's left eye 2 weeks prior to admission to the hospital. This caused some

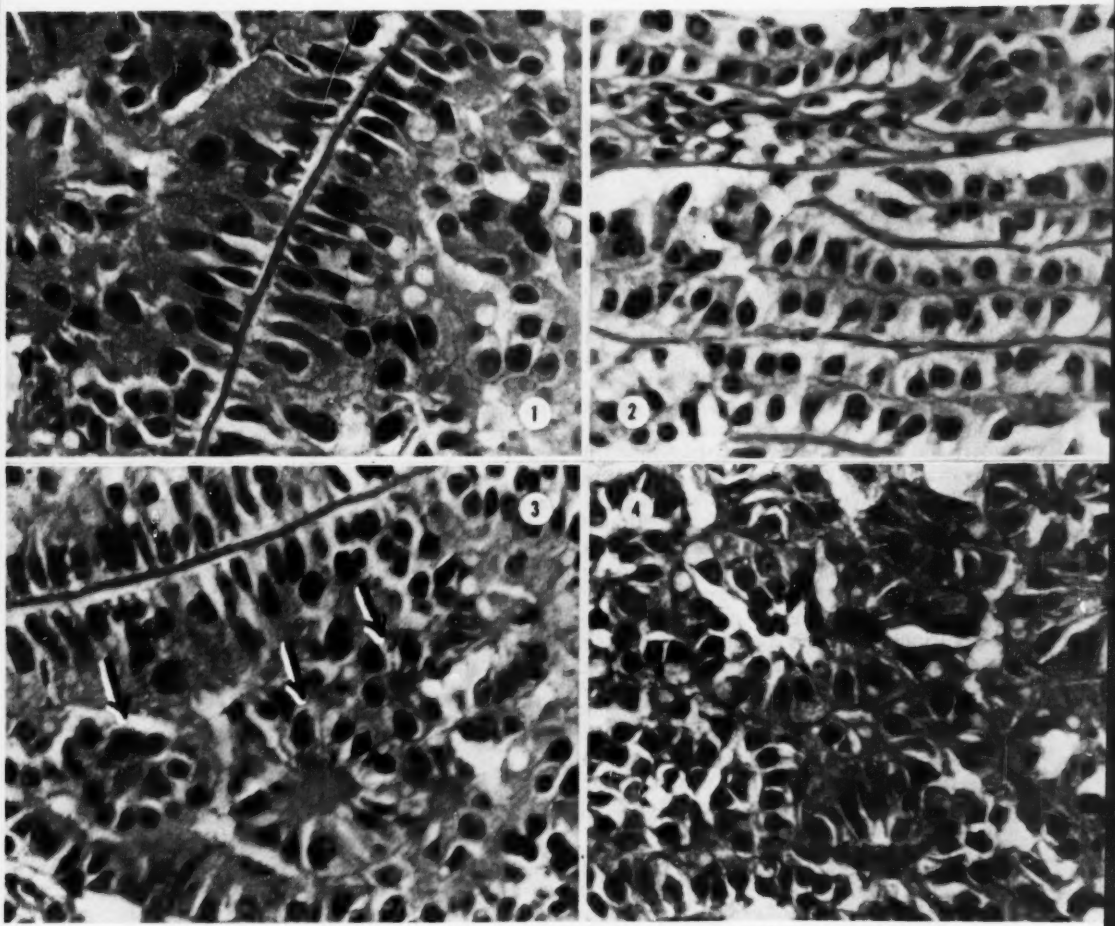

Fig. 1 — Neuroepithelial-like cells of a retinoblastoma appear in palisade formation. H & E stain; x 250.

Fig. 2 — Rows of cells of a retinoblastoma form closed acinar units. H & E stain; x 250.

Fig. 3 — Rows of cells are separated by rosettes. Arrows point to rosettes. H & E stain; x 250.

Fig. 4 — Group of rosettes shows that most of the lumina of rosettes are filled with a homogeneous mass of protoplasm. H & E stain; x 250.

concern, since the sire of the Corgi was blind from opacity of the lens. Several days later, the owner observed a mass in the eye that resembled a "frozen shrimp."

An eye specialist (physician) examined the animal, diagnosed the condition as melanoma of the retina, and advised enucleation. The operation was performed (by J.H.) on Nov. 21, 1957. Recovery was uncomplicated. The dam of this dog had died of cancer which was not classified histologically. A family history involving 4 generations of this line of Welsh Corgis was available. The history included grandparents, parents, F_1, and F_2 generations. The cancer of the mother and the retinoblastoma were the only tumors known to have occurred in this family history.

Gross Pathologic Findings.—The tumor was situated lateral to the crystalline lens on the iridial portion of the retina, that is, the posterior surface of the iris. It extended laterally over the ciliary portion of the retina on to the optic portion of the retina for 10 mm. The tumor seemed not to extend posteriorly as far as the area of photoreceptors.

The mass had exerted pressure against the iris and had forced it anteriorly against the cornea. The tumor projected slightly

into the anterior chamber, obliterated the posterior chamber at its point of invasion and protruded into the vitreous body.

The growth was pear shaped and irregular in outline measuring 11 by 14 by 5 mm. The outer surface was rough, heavily pigmented and black in color. The cut surface was gray mottled with brown and the periphery was black.

The attachment to the iris and retina involved the entire anterior and lateral aspect of the tumor. The attachment to the optic portion of the retina was firm, with no definite line of demarcation between the tumor and the retina. The attachment to the iridial portion of the retina was less secure. The cut surface did not reveal obvious penetration through the retina. The tumor had exerted pressure on the lateral anterior surface of the lens and had produced a slight concavity of the lens in this area.

A common characteristic of this tumor is the multiplicity of its foci.[21] Stereoscopic visualization of the surface of the retina did not reveal other foci.

Histopathologic Findings.—The tumor was composed principally of neuroepithelial-like cells in palisade formation. In some areas, these cells were lined up on either side of a thin, but distinct, strand of acellular stroma with 50 to 100 cells in a row (fig. 1). The rows of cells were single-layered and usually parallel, so that the free surfaces of opposing cells met to form closed acinar units (fig. 2). In other areas, the rows of cells were separated by groups of rosettes. The free surface of the cells in palisade formation rested against the basal portion of the rosette cells with no stroma separating the two (fig. 3). The nuclei of the cells in parallel rows were usually basally situated. They were close-faced and oval or elongated in shape. The cytoplasm extended outward and was generally in apposition with the free surface of the cell on the opposite side. The cell outline was distinct and the impression of a limiting membrane was created at the point where the free surfaces of the cells touched. Mitotic figures were rare.

Rosettes, as originally described,[9] were plentiful. The rosettes were formed by 15 to 25 cells in radial fashion with peripheral nuclei. The cells were conically shaped with pointed fibrillar excrescents of protoplasm projecting into the lumen. The fibrils appeared to converge, forming a dark pink-stained homogeneous mass of protoplasm that filled most of the lumen of the rosette (fig. 4). Because of this, many rosettes did not exhibit true cavity formation. Very few rosettes showed a distinct limiting membrane. The nuclei of the rosette cells were round or oval and relatively uniform in size.

At one point the tumor had penetrated the choroid and the superficial collagenic fibers of the sclera. Serial sections did not reveal deep penetration into the sclera. The tumor at this point did not present a distinct pattern. There was some attempt at rosette and acinar formation but most of the cells were loosely connected, with indistinct outlines. Mitotic figures were numerous in this area. The retinoblastoma was bordered by pigmented epithelium of the retina, suggesting retinal separation. Most of the epithelium was necrotic. Necrosis was observed in the depths of the tumor in areas distant from blood vessels. Hemorrhage was not a characteristic feature of this specimen.

Discussion

The prognosis of retinoblastoma in man is related to the extent of tumor invasion. Unless effective surgical or irradiation therapy is initiated before the lesion has spread beyond the confines of the globe of the eye, the outcome is almost invariably fatal.[18]

The mortality rate in man is about 50 per cent, and death usually follows within a year after enucleation.[1]

Retinoblastoma in this case was confined to the globe and the dog was alive 18 months postoperatively.

Summary

Retinoblastoma was diagnosed in a 9-year-old Welsh Corgi. This tumor was diagnosed clinically as malignant melanoma but proved to be a retinoblastoma on histopathologic examination.

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Mouse Leukemia Virus Isolated

A team of British scientists has reported that a virus, isolated from a mouse with leukemia, will produce heart, lung, and kidney sarcomas, and mammary tumors when injected into young mice, rats, and hamsters. Some virus must be present in these tumors, although cell-free extracts of hamster tumors are apparently not infective for newborn or adult hamsters. These extracts injure mouse embryo cells, and cell-free cultures from these embryo cells will again produce bloody lesions and tumors in hamsters.—*Sci. News Letter, Jan., 1960.*

Blood Volumes in Dogs

A comparison of blood volumes measured by T-1824, rose bengal, red blood cells tagged with radiochromium, and a combination of the T-1824 and chromium-tagged cells yielded blood volumes of 8.3, 9.12, 7.58, and 8.09 per cent of the body weight, respectively. The blood volumes determined by the simultaneous measurement of plasma volume by T-1824 and red blood cell volume by tagging with radiochromium are the most accurate. This work indicates that average healthy dogs have a blood volume equal to 8.09 per cent of body weight.—[*Carl H. Clark and C. H. Woodley.: A Comparison of Blood Volumes as Measured by Rose Bengal, T-1824 (Evans Blue), Radiochromium-Tagged Erythrocytes, and a Combination of the Latter Two. Am. J. Vet. Res., 20, (Nov., 1959): 1067-1068.*]

Allergic Reaction to Rabies Vaccine

Apparent Allergic Reactions in Two Dogs Following Vaccination with Chicken Embryo Rabies Vaccine

Maurice S. BATSON, D.V.M.

Case 1

ON JUNE 3, 1959, a spayed Collie-Shepherd bitch, 3 years old and weighing 35 lb., was vaccinated against rabies at a community clinic. At the time, the owner stated that in 1957 she had been vaccinated against rabies by me and had become sore and stiff for 2 or 3 days. In 1958, she was vaccinated by another veterinarian and was sick for 3 or 4 days, during which time she refused to eat. In both instances, chicken embryo rabies vaccine was used.

Since Illinois state law requires annual vaccination of dogs for rabies, revaccination was advised. Because chicken embryo rabies vaccine had been used exclusively since 1955 with no known ill effects or reports of allergic reactions in adult dogs, this type of vaccine was used again. The vaccine had been obtained from an ethical laboratory and had been properly refrigerated since delivery.

The owner was advised to bring the dog to the veterinarian's clinic immediately if she became ill.

On June 10, 1959, she was brought to the veterinarian's clinic with a history of having been sick since a few hours after vaccination on June 3, 1959. The owner stated that he would have brought her back earlier, but he thought she would recover in a few days as she had the year before.

The owner reported that a few hours after the recent vaccination, she became ill and refused food until the morning of June 10, 1959, when she drank a little milk which she vomited after a short time. Once during her illness, she was gone an entire day and, when she returned, she lay in the house with an apparent attitude of trying to hide from or avoid members of the family.

Her temperature was 100.0 F. and her pulse was weak. She was emaciated, appeared dazed, and most of the time stared straight ahead. Her attention was not easily attracted. The pupils appeared to be contracted more than normally. She made no attempt to bite at any time. At first, she refused all food, but later she drank a little milk when water was withheld. She drank water frequently, as if very thirsty, and usually vomited it within a few minutes.

Soon after examination, she was given 1/200 gr. of atropine sulfate subcutaneously, 250 ml. of glucose solution (5%) in distilled water intravenously, 500 μg. of vitamin B_{12} intramuscularly, and ½ gr. of phenobarbital orally in an attempt to control the vomiting. On June 11, 1959, she was weaker and the glucose and atropine treatments were repeated. She continued to drink water, and some milk at one time, but vomited frequently. Early in the evening, her condition became considerably worse and she was placed in an oxygen cage and given 5 liters of oxygen per hour. She died about 10:00 p.m., June 11, 1959.

Necropsy examination revealed ecchymotic hemorrhages on the surface of the lungs and on the pericardium. There was some congestion in the spleen and kidneys; however, the other organs appeared normal. There was no parasitism. The head was sent to the Regional Diagnostic Laboratory at Centralia, Ill., where both microscopic and mouse inoculation tests for rabies were reported as negative.

Case 2

On July 1, 1959, a male Redbone Hound weighing 95 lb. was vaccinated with chicken embryo rabies vaccine of the same serial number as that used in the above case. The

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following day, he showed evidence of considerable incoordination. The owner insisted that the vaccine had caused the condition. Several engorged ticks were observed, which were removed. The owner was told that the condition was probably tick paralysis, but ticks of a species known to be capable of inducing paralysis were not identified. The dog was given 20 mg. of prednisone by intramuscular injection. The owner was instructed to bring the dog back in 48 hours if he had not recovered, or earlier if he became worse.

The case was not again brought to the veterinarian's attention until July 10, 1959, when the owner came to the clinic without the dog and complained that it had not eaten for several days after vaccination because of the incoordination. The dog's appetite was good, but when he attempted to reach the food he fell. Later, he learned to adapt himself to this condition by lying down and creeping up to his food which was placed on the ground. On July 11, 1959, the condition was observed by the veterinarian at the owner's residence, but the dog's condition was improved considerably by that time. He could eat with some difficulty on standing, but lay down most of the time while eating. The owner stated that the dog appeared to be quite happy and unaffected in any way except for the incoordination.

One injection of 30 mg. of prednisone was given July 11, 1959, and another was given 3 days later. At the time of the last injection the animal showed no signs of incoordination. The dog had a habit of leaping into the air and whirling when he was about to be fed. During the time of his incoordination, he stopped this and did not resume the habit for some time afterward. About 30 days after the last injection of prednisone, he was as acrobatic as he had been before vaccination, indicating complete recovery.

Both cases were discussed with the veterinarian employed by the laboratory that made the vaccine. He authorized return of the remaining vaccine, but stated that he had not previously heard of an allergic reaction occurring in dogs as a result of vaccination with chicken embryo rabies vaccine.

Summary

Two dogs experienced what might have been an allergic reaction due to administration of chicken embryo rabies vaccine. One dog, judging by its previous history of apparent vaccination reactions, probably was allergic to this vaccine and died as a result.

The second dog was afflicted with a partial paralysis, possibly due to tick infestation; however, the ticks were examined and were not identified as being of a species known to cause paralysis. Thus, an apparently healthy dog developed extreme incoordination a few hours following vaccination, but he eventually recovered.

Rabies on Increase

During 1959, 283 cases of rabies in animals were reported in the state of Arkansas. This was more than double the 137 cases reported in 1958. Of the 283, 132 were in foxes, 101 in dogs, and 37 in cattle.

In 1959, there were 200 confirmed cases of rabies in animals in Iowa. Of these, 101 were in skunks, 55 in cattle, 19 in dogs, and 18 in cats.—*Morbid. and Mortal. Rep., U. S. Dept. of Health, Educ., and Welfare, 9, (1960): 2.*

Failure of

Preputial Closure

in a Dog

J. Ellis CROSHAW, Jr., B.S., D.V.M.
Robert S. BRODEY, D.V.M., M.SC.

A 6-month-old, 7-lb. male Boston Terrier was examined at the University of Pennsylvania veterinary clinic on Oct. 9, 1958, because the owner had observed that its external genitalia appeared abnormal since birth. It seemed normal in all other respects.

Physical examination revealed a complete failure of the prepuce to close along the ventral midline, thus exposing the entire preputial mucosa (fig. 1). Protruding from the caudal part of this defect was the glans penis which had a slight downward deviation. The urethral opening was located on the ventrum of the penis at the junction of the penile mucosa and the skin about 2 cm. caudal to the tip of the glans penis. Both testes were scrotally positioned and were normal on palpation. The rest of the physical findings were normal.

A diagnosis of failure of preputial closure was made and excision of the preputial mucosa and the protruding portion of the glans penis was advised for cosmetic reasons.

Surgical Procedure

The dog was anesthetized with sodium pentobarbital intravenously following preanesthetic sedation with 15.0 mg. of morphine sulfate and 0.43 mg. of atropine sulfate. A double elliptical incision was made which encompassed the exposed preputial mucosa. This mucosa was then dissected caudally to its reflection on the glans penis. The dorsal veins of the penis were ligated just caudal to the portion of the glans penis to be removed. The preputial and penile mucosa and the glans cranial to the urethral opening were then excised. The incision was closed with interrupted subcuticular and skin sutures. Since the suture line was near the urethral opening, a small polyethylene tube was inserted into the urethra to prevent stricture, and it was sutured to the adjacent skin (fig. 2).

The postoperative course was uncomplicated. The urethral tubing was removed on postoperative day 4, and the skin sutures on day 6. Two weeks later, urination was normal except that the urinary stream was directed slightly toward the left side.

Examination

The excised tissue was stretched on a microscope slide and fixed in cold 10 per cent buffered formalin for 48 hours. It was noticed that the cranial end of the os penis and its cartilaginous cranial extension presented a definite ventral deviation. The surface of the glans penis and the preputial mucosa appeared grossly normal. After fixation was complete, 8-μ sections of the preputial mucosa and the glans penis were made and stained with hematoxylin and eosin. Portions of tissue from the preputial mucosa of 2 normal dogs of similar age were also removed and sections prepared in the same manner.

Study of the slides of both the normal and open preputial mucosa revealed the presence of stratified squamous epithelium of a modified type containing pale vesicular cells somewhat resembling sebaceous gland cells. The surface cells showed only slight flattening and minimal cornification except near the preputial orifice and on the surface of the glans penis where cornification was more advanced. No glands were present in the tunica propria. The normal pre-

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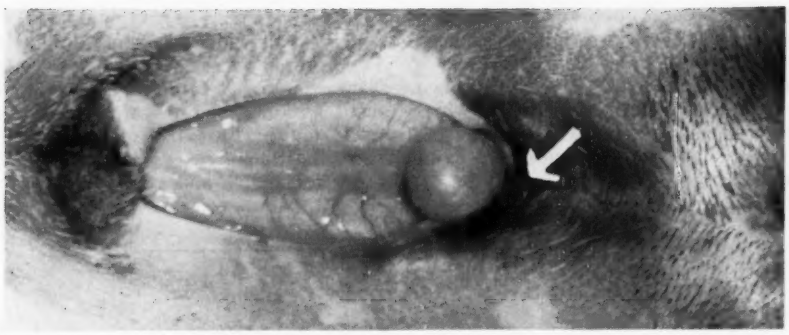

Fig. 1—Ventral view of abdomen of the Boston Terrier prior to surgery showing exposed preputial mucosa and ventrally deflected glans penis. The urethral orifice (arrow) is located on the ventrum of the glans penis at the mucocutaneous junction.

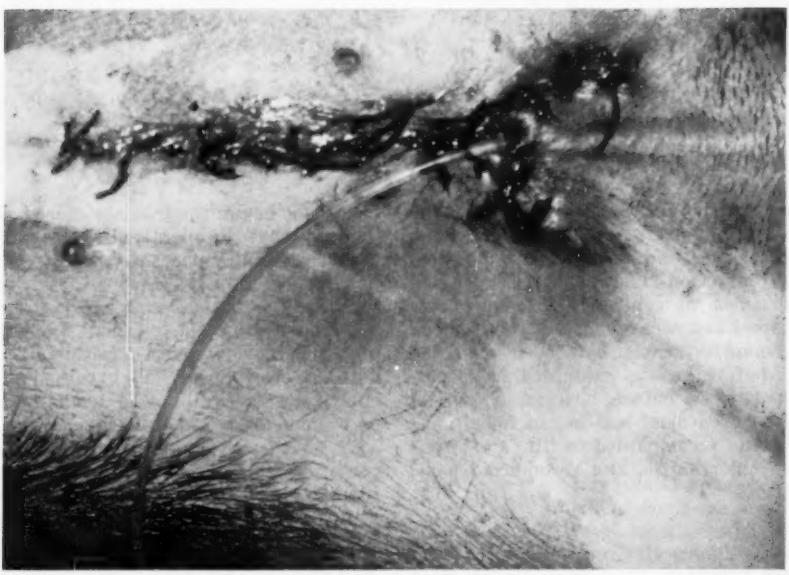

Fig. 2—Ventral view of abdomen of the dog following excision of prepuce and a portion of the glans penis showing skin suture pattern. A polyethylene catheter has been placed in the urethral orifice.

putial mucosa of the dog has been well described.[1] The cranial portion of cartilage of the os penis appeared histologically normal. The ventral deviation of this cartilage was probably related to the absence of support from the prepuce.

[1]Bloom, F.: Pathology of the Dog and Cat: The Genito-Urinary System, with Clinical Considerations. American Veterinary Publications, Inc., Evanston, Ill., 1954.

Discussion

The normal embryologic development in the male involves the lengthening of the genital tubercle to form the penis and the closure of the genital folds over the penis to form the prepuce. Cases of failure of closure of the genital folds have been reported[1] to be associated with male pseudo-

hermaphrodism and to be seen most frequently in Boston Terriers and Pekingese. This case appears to be due to a failure of closure of the genital folds in the embryo. Cases have been seen in our clinic in which failure of preputial closure was associated with failure of urethral closure (hypospadias).

Summary

A case in which the genital folds failed to close and form the prepuce in a Boston Terrier pup is reported. Successful treatment by surgical removal of the open prepuce and part of the glans penis is described. Such cases unaccompanied by other anomalies appear to be rare.

Mites in Frontal Sinuses of a Dog

— *A Case Report*

Harold KOPP, D.V.M.
Nell STOCKTON, D.V.M.

A MALE Scottish Terrier, 14 years old, was hospitalized primarily because of torticollis. He had a long and continuing history of ascarid infection and, although treated several times, he continued to pass worms in the stool and occasionally to vomit them. These manifestations had been observed shortly before he was examined as an outpatient 1 week before hospital entry. At that time, treatment was begun for clinical pneumonia accompanied with stertorous respiration, rhinitis, and seromucoid nasal discharge.

Signs and Treatment

At the time of entry, the patient had a body temperature of 104.4 F., purulent exudate from the right ear, torticollis to the right, and respiratory dyspnea which seemed due to a nasopharyngeal obstruction. He was placed in an oxygen cage. Culture of the aural exudate revealed an anaerobic bacillus and treatment was instituted. There was no sign of pain associated with the right ear, and 1 day after treatment began the exudate ceased. It was thought that the torticollis was an incidental vestibular paresis.

After 3 days of medical and oxygen therapy, the patient was much improved; his temperature was normal; he was eating; and there were no nasal or aural exudates. However, he still breathed stertorously, the torticollis was unchanged, and he was moderately depressed.

At this time, it was believed the patient could be given general anesthesia for a thorough examination of the nasopharyngeal region. The nasal fossae were examined with a 2½-inch, narrow lumen, standard ear speculum attached to an otoscope. No abnormality was found except for rhinitis, with swollen turbinates. Radiographs of the skull revealed no abnormalities. Treatment was continued for 5 more days with no change in the patient's condition. The owner requested euthanasia.

Necropsy Examination

At necropsy, both frontal sinuses were found to contain numerous mites, presumably *caninum*. No mites were found in the nasal meatuses.

The authors are small animal practitioners in Greenwich, Conn.

Posterior Sclerotomy — A Surgical Procedure for

Treatment of Glaucoma

Preliminary Report

William F. STACK, D.V.M.

POSTERIOR SCLEROTOMY, incision of the posterior part of the sclera, is a simple surgical procedure to aid relief of intraocular pressure associated with glaucoma.

In man, posterior sclerotomy is performed in order to lower intraocular tension sufficiently to permit surgery later with greater safety, or to allow medical treatment to take effect. A permanent operation to relieve glaucoma is safest when performed on an eye in which tension is as near normal as possible.

Procedure

Anesthetic technique for posterior sclerotomy is dependent both on the temperament of the patient and the wishes of the surgeon. It has been performed with as mild as anesthetic as 2-diethylaminoethyl 3-amino-4-propoxybenzoate hydrochloride (Opthaine*) locally applied in the eye, and it has required general anesthesia for the intractable patient. The operation is performed by inserting a Graefe cataract knife between the lateral and medial rectus muscles, 8 mm. from the corneal margin, and passing the blade through the sclera toward the center of the eyeball to a depth of 4 to 6 mm. As the knife is slowly withdrawn, a quarter turn is executed producing the formation of a slight triangular wound which favors filtration.[1] The knife should be inserted parallel to the vessels of the eyeball.

It became apparent, after the first few operations, that a quarter to a half turn of the knife was necessary in order to have an incision large enough to allow the escape of vitreous humor. The viscosity of the vitreous humor and the size of incision determine rate of flow. Pressure may be necessary on the eyeball in order to force vitreous out. Tension then can be reduced to normal.

Discussion

Since medical treatment frequently fails to normalize tensions, and since surgical procedures such as iridencleisis and cyclodialysis have not been uniformly satisfactory, this simple posterior sclerotomy procedure is being advanced. It has proved to be valuable especially for relief of acute congestive glaucoma.

All the general characteristics of glaucoma may not be exhibited in any 1 animal. From the practicing veterinarian's standpoint, the 3 most important diagnostic findings in acute glaucoma, where this operation has its greatest usefulness, are: (1) increase in intraocular tension (a hard eyeball determined by comparison with the eyeball of a normal animal); (2) dilated pupil; and (3) cloudy (steamy) cornea.

There are some hazards that may be involved in the procedure, such as hemorrhage into the vitreous humor and intraocular infection.

Paracentesis of the vitreous, rather than aqueous, humor is preferred because vitreous reforms more slowly. As a result, miotic agents have a better opportunity to take effect.

Report of Cases

Case 1. — An 8-year-old Boston Terrier bitch was presented for examination on

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The author thanks I. Herbert Katz. M.D., for assistance in the preparation of this article.

*Opthaine solution, 0.5 per cent, is produced by E. R. Squibb and Sons, New York, N.Y.

May 2, 1957. Examination disclosed a severe ulcer in the right cornea, resulting from a scratch, and acute congestive glaucoma of the left eye. Pain was evidenced by restlessness, crying, and pawing at the left eye. A posterior sclerotomy was performed on the left eye and tension normalized. Acetazolamide (Diamox*) and isofluorophate (Floropryl**) therapy was instituted immediately. Miosis was perceptible with 4 hours and evidence of pain ceased. The postoperative course was uncomplicated. Tension was normal upon digital palpation 3 months later. The right eye responded to atropine and chloramphenicol (Chloromycetin†) therapy although a fairly large scar remained.

TABLE 1—Results of Treatment of Glaucoma by Posterior Sclerotomy

Case (No.)	Diagnosis	Complications	Drop in intraocular tension*	Course and results
1	Acute congestive glaucoma.	None	Marked	Pain and tension controlled; miotics used.
2	Acute congestive glaucoma—right eye	None	Partial	Tension partially controlled.
	Chronic glaucoma—left eye.	Hemorrhage	None	Tension not controlled
3	Acute congestive glaucoma.	None	Partial	Tension partially controlled.
4	Chronic glaucoma—right eye.	None	Marked (transient)	Pain relieved, but tension only partially controlled.
	Chronic glaucoma—left eye.	None	Partial (transient)	Pain and tension not controlled; enucleation performed.
5	Acute congestive glaucoma.	None	Marked	Tension controlled.

*Measured by digital palpation.

Case 2. — A 5-year-old Cocker Spaniel was presented for examination on Jan. 27, 1957, with acute congestive glaucoma of the left eye. Pilocarpine (2%) Isopto Carpine‡) therapy was inaugurated. On Jan. 16, 1958, the patient was returned to the clinic with acute congestive glaucoma of the right eye and chronic glaucoma of the left eye. A bilateral posterior sclerotomy was performed on both eyes and isofluorophate and acetazolamide therapy instituted. On February 5, tension was unchanged in the left eye and hemorrhage in the anterior chamber had occurred. The right eye responded to therapy and, although tension was higher than normal, some miosis was present. On February 22, when the patient was again returned to the clinic, the owner reported some vision was present, presumably from the right eye. Examination of the eye showed it to be normal, but reaction to light was sluggish. Episcleral vessels were congested and tension was slightly abnormal. Subsequent examination disclosed no appreciable changes in the condition.

Case 3. — A 3-year-old Cocker Spaniel was presented for examination on June 12, 1958. All the signs of acute congestive glaucoma were present in the left eye. A posterior sclerotomy was performed, and pilocarpine therapy initiated. Intraocular pressure remained normal for 3 days postoperatively and began to rise on the fourth day. Some increased tension existed for 4 weeks while the dog was under observation. However, the pupil contracted to light, and vision apparently was restored.

Case 4. — A Cocker Spaniel was presented for examination on Sept. 12, 1958. Chronic glaucoma of both eyes was diagnosed; the patient was blind. A posterior sclerotomy was performed on both eyes and miotic therapy begun immediately. Intraocular tension returned to normal for 48 hours, and began to rise in the next 48 hours. After 4 days, tension was back to its preoperative level and no pupillary response could be elicited. The dog was still blind. There was pain in the left eye, evidenced by pawing at the eye and skidding the head along the rug. Enucleation was performed. The right eye remained in its former preoperative state with tension high. However, there appeared to be no pain. The owner decided under these circumstances he would keep the dog but without further surgery.

Case 5. — A 6-year-old Beagle bitch was

*Diamox tablets, 250 mg., were supplied by American Cyanamid Co., Pearl River, N.Y.

**Floropryl was supplied by Merck Sharp & Dohme, Philadelphia, Pa.

†Chloromycetin was supplied by Parke, Davis & Co., Detroit, Mich.

‡Isopto Carpine, ophthalmic solution (Droptainer) is supplied by Alco Laboratories, Inc., Fort Worth, Texas.

presented for examination Oct. 8, 1958, and acute congestive glaucoma due to trauma was diagnosed. Posterior sclerotomy was performed and intraocular tension returned to normal. With the use of miotics and antibiotics, tension remained normal. The cornea cleared and in 6 days vision returned.

Results

Best results from posterior sclerotomy were attained in cases of acute congestive glaucoma. Abnormal intraocular tension was consistently reduced. Results with chronic glaucoma were uniformly poor although posterior sclerotomy was helpful in relieving tension or pain until a more permanent operative procedure could be performed. Treatment by medication alone has proved unsatisfactory.

In one case, it was necessary to enucleate the eye because painful conditions persisted even after posterior sclerotomy.

Summary and Conclusions

Five cases of glaucoma are reported in which single or double posterior sclerotomies were performed. A drop in intraocular tension occurred in all cases. A prolonged diminution in tension was obtained in those eyes affected with acute congestive glaucoma. It is suggested that this operation be used as an adjunct with miotics in cases of acute congestive glaucoma.

The operative technique is uniquely simple, and there is a wide margin of surgical safety. It can be performed in the office under light anesthesia with local anesthetics. The only instrument necessary is a Graefe knife. Except for the possibility of hemorrhage, which will occur on occasion, no other adverse sequelae to this operation have been observed. Hemorrhage, when it has occurred, was absorbed.

This procedure offers the possibility of prolonged relief from pain in eyes with gluacoma of long standing which are resistant to other forms of treatment.

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[6]Magrane, W. G.: Canine Glaucoma—Methods of Diagnosis. J.A.V.M.A., 131, (Nov. 15, 1957): 311-314.

Ophthalmic Drug Doubles as Tranquilizer and Nasal Decongestant

Use of 0.05 per cent solution of tetrahydrozoline as a decongestant in over 1,000 human patients was reported by D. M. Gordon in the *American Journal of Ophthalmology* (48, Sept., 1959: 395-399). It was found to be a valuable and safe adjunct to ocular therapy when used for temporary paling of the eye following an office procedure which induces marked conjunctival congestion, for relief of ocular fatigue, for local ocular allergies, and for a diluent for steroids, antimicrobials, and other topical medications, when rapid paling or decongestant effect is desired.

Tetrahydrozoline has previously been offered as a nasal decongestant and as a principal component of a feed additive tranquilizer designed to promote weight gains in animals.

Correction of Branchial Cysts

by a Permanent Sublingual Fistula

R. Thomas BERGMAN D.V.M.

THE CONVENTIONAL approach to correcting branchial cysts is a lengthy procedure, often requiring fastidious dissection around the jugular vein, carotid artery, branches of the vagus nerve, ventral branch of the first cervical nerve, thyroid gland, and other vital structures. The method of correction of branchial cysts described below, has definite advantages:

1) Elimination of external scarring which is cosmetically important, especially in the short-haired breeds.

2) Minimal postoperative care, short hospitalization period, and no danger of disruption of suture layers due to accidental mishandling of the cervical area.

3) Simple operative technique, requiring a minimum of time and equipment.

4) Complete elimination of the possibility of incomplete removal of the cyst, which results in recurrence.

5) No danger of injury to the vital structures of the neck if normal precautions are taken.

6) Elimination of the necessity of a twofold approach to completely remove the cystic process; e.g., a ventral midline approach to remove the cervical portion, and an oral approach to remove the frequent sublingual extension.

Upon examination of a patient with a ventral cervical swelling, aspiration must be used to accurately diagnose a branchial cystic condition and to distinguish a branchial cyst from such conditions as cervical abscesses, hematomas, tumors, or salivary adenitis. Aspiration of characteristic rust-colored tenacious fluid confirms diagnosis of a branchial cyst.

After aspiration, preparations for surgery can be made. Instruments and materials required include a 5-inch, 12 to 14 gauge, hypodermic needle, a 6-inch length of 1/8-inch polyethylene tubing, a 2-bladed Wisconsin-style teat slitter, a needle holder, suture material, and a self-locking canine mouth speculum.

Food and water are withheld from the patient for at least 6 hours before surgery. Preoperative medication includes the administration of a penicillin-dihydrostreptomycin combination (2,000 units of penicillin and 5 mg. of dihydrostreptomycin/lb. of body weight) and 1/150 to 1/50 gr. of atropine sulfate. The atropine will prevent excessive salivation, laryngospasm, and vomiting during surgery.

Fig. 1—A 12-gauge, 5-inch needle is inserted under the tongue to aspirate cystic fluid.

The patient is anesthetized with thiamy-

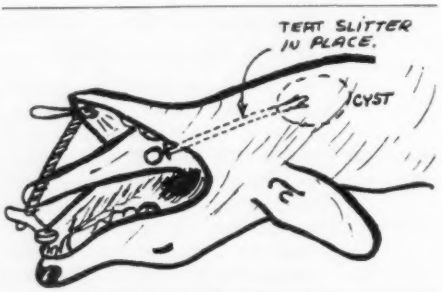


Fig. 2—A Wisconsin-type teat slitter is inserted through needle puncture and withdrawn to enlarge it and facilitate cyst drainage.

The author is engaged in private veterinary practice in Cassopolis, Mich.

lal sodium* and placed in dorsal recumbency. The self-locking mouth speculum is inserted to hold the patient's mouth open. The tongue is held to the side by an assistant. Next, the sublingual mucous membrane is painted with tincture of quaternary ammonium compound** for antisepsis.

The swelling is palpated and immobilized with one hand while the needle is inserted into the sublingual tissue at the level of the second or third lower molar on the side where the most pronounced swelling is located. This needle is directed cautiously through the soft tissues and into the cyst. When the cystic fluid begins to escape, the needle is withdrawn. Then the teat slitter, with the blades retracted, is introduced into the puncture wound and inserted into the cyst. When the instrument is within the cyst, as determined by external palpation, the blades are extended and the slitter is withdrawn, thus enlarging the incision.

The polyethylene tube, beveled to facilitate insertion into and through the puncture incision, is introduced into the cyst. When the tube enters the cyst, characteristic branchial cystic fluid will discharge through the tube. The end of the tube remaining in the buccal cavity is cut off, leaving 0.25 to 0.5 inch extruding from the puncture under the tongue. The extruding tubing is then split and sutured to the sublingual tissues using noncapillary suture material to complete the operation. Penicillin and dihydrostreptomycin (4,000 units of penicillin and 10 mg. of dihydrostreptomycin/lb. of body weight) are administered twice postoperatively at 24-hour intervals, after which the patient is discharged.

The tubing should be left in place for 3 weeks and then removed. This period permits complete healing around the tube and results in the production of a fistula leading from the branchial cyst to the mouth of the dog.

There is little danger of ingesta entering the tube orifice due to its position under the tongue and the normal eating habits of the dog. It would seem that bacterial invasion of the cystic structures could occur, via the fistula, and result in a deep infection. To date, no such infection has occurred. If such a condition is encountered, flushing the cyst with an antibiotic solution would seem to be the best treatment.

This technique has been utilized on 6 dogs. Only the first patient has occasional accumulations of fluid within the cyst. This accumulation is easily expressed by merely applying moderate pressure to the swelling, thus discharging the contents into the dog's mouth. The owner may be taught to do this. This after-effect is probably due to premature removal of the tube (10 days postoperatively.) In the other cases, there have been no such swellings, and the fluid seems to drain in small amounts, continually, into the dog's mouth, causing no discomfort or inconvenience.

*Thiamylal sodium is available as Surital Sodium from Parke, Davis, and Co., Detroit, Mich.

**Tincture of quaternary ammonium compound is available as tincture of Q.A.C. from Jensen-Salsbery Laboratories, Kansas City, Mo.

Cytopathic Effect of Canine Distemper Virus in Tissue Culture

A characteristic cytopathic effect was obtained with canine distemper virus (Onderstepoort strain) propagated in chicken embryo fibroblast monolayer tissue culture. In limiting dilutions, the lesions were focal. On the 20th tissue culture passage, the titer was approximately 10^5 t.c.d.$_{50}$/ml. Cytopathogenicity was specifically inhibited by distemper-immune serum. Minute plaques were produced under agar overlay.—*Science, 130, (1950): 1708.*

Editorial

What's Bad About Unrestricted Sales of Animal Medications

Last fall, an article in a nationally prominent sales magazine described how a large pharmaceutical firm was educating its salesmen in the techniques of administering medications to farm livestock. These men supposedly were being trained to better understand how the products they sell were to be used. What the article did not say was that these salesmen could advise and show (after a fashion) farmers, feed dealers, and drugstore merchants how to administer medicines to animals and bypass professional diagnosis and consultation.

Last January, a nationally prominent dairy magazine carried a four-page advertisement of another large pharmaceutical firm, complete with pictures showing dairymen readers how to administer medications via the intravenous, subcutaneous, intramammary, and oral routes, and stated the names of sulfonamide and antibiotic products available to farmers for treating disease by these routes.

The problem we face as a profession is not whether these types of advertising and promotional techniques are good or bad for veterinarians. The problem is a much larger one and concerns the question of whether these advertising and promotional techniques are good for the animals, owners of animals, livestock production, and the public welfare.

Haphazard Medicine Encouraged

It would be exceptional to find an individual well-educated in the medical sciences who would minimize the value of accurate diagnosis. Yet, that is what these promotional schemes do. They seem to circumvent the public interest. Treatment not based on diagnosis borne of professional education and experience is haphazard medical practice, at best. Treatment without proper diagnosis is wasteful, and the medication used is often excessive, unnecessary, and misapplied. As a result, animal owners expend their hard-won earnings for all sorts of medicaments in vain attempts to achieve cures which are often improbable and even impossible. By citing isolated instances where others have been successful, advertisers create the illusion that all may be lucky enough to cure disease by home medication and save a "vet" bill.

Losses in Animal Resources and Investment

Haphazardly directed treatment of disease, like any other haphazardly directed activity, is wasteful in other ways, too. Animals that die as a result of improper diagnosis and treatment at the hands of self-styled "veterinarians" and do-it-yourselfers are lost to the nation's food supply, a flagrant waste of our animal resources. Such conditions would not be tolerated in countries where meat foods are in short supply.

There is still another consideration regarding waste arising from haphazard medication. Any animal that dies because of inadequate veterinary care takes with it a tremendous investment in feed and man hours of care. A single market steer which dies from shipping fever represents a loss of hundreds of dollars.

Public Safety Jeopardized

Although waste of the animal owner's time, effort, and money is an extremely serious matter, the welfare of all consumers of meat food products will be adversely affected also. They will be eating unsafe and adulterated foods because indiscreet medication of animals headed for immediate slaughter will contain drug residues in their flesh. Such medication practices are prohibited by law, and guilty parties may be punished. But it is a law impossible to enforce in many instances, and the integ-

rity of the individuals involved is the only practical safeguard. In this respect, it appears that medication will be misused when not handled through an ethical professional group, such as veterinarians, and the public will suffer. Proof of the dangers of promiscuous medication has been shown by the four surveys made by the FDA since 1957.

In these surveys, dangerous residues of penicillin which were found in milk were considered largely due to improper use of mastitis infusion preparations or failure to follow instructions on packaged products requiring that milk from treated cows be withheld from the market for 72 hours.

Inhumanity of Home Treatment

In the United States, a man has the right to have every cow in his barn killed and buried if he so chooses. But the law requires that he do it humanely. Yet, he is encouraged by do-it-yourself promoters to medicate his own animals, using techniques for which he is poorly educated and equipped. Consequently, they are often inhumane techniques. For example, he is encouraged to attempt venipuncture of the jugular vein, using long, large-gauge hypodermic needles. Jabbing, poking, and stabbing erratically and frantically while the helpless animal lunges and bellows, he causes phlebitis, formation of dangerous blood clots, hemorrhage, mutilation, inflammation, infection, sloughing and, possibly, death of the animal. Many other examples could be cited. With all the legal activities to assure humane treatment of pets and slaughter of meat animals, we can only wonder why the inhumanity of unskilled medication of animals is allowed to persist.

Drug Industry Holds Key

Perhaps animal drug advertising and sales promotion agencies and the manufacturers they represent will one day embark on a program of self-analysis as other advertising agencies and manufacturers have done, yielding to the pressure of public displeasure and Federal Trade Commission censure. We can only hope that corrective measures will be taken voluntarily so that legislative action and governmental regulation will not become necessary to protect the livestock industry and the public from short-sighted and dangerous promotional policies.

Advent of Topical Vaccines

Infecting animals by applying the disease agent to the eye is a well-known technique. Surprisingly, this route has never been widely utilized for administration of vaccines. Today, however, a vaccine to be administered in the form of a topical eye ointment has become available to veterinarians. It is an infectious canine hepatitis ointment vaccine (W. Gimber and Sons, Ltd., London) prepared from the liver of infected dogs.

The vaccine is said to stimulate some degree of resistance in only 24 hours. Furthermore, the manufacturer states that a positive eye reaction shows the dog was susceptible at the time of vaccination and will become immune. Absence of eye reaction indicates that immunity is already present.

The impact such developments may have on veterinary practice should not be considered lightly, because many people think simply-administered vaccines are adaptable to effective lay usage. This is a risky assumption, to say the least, because vaccines in any form require expert handling to produce optimum results.

from the Research Journal

Cadmium Compounds for Strongyloides in Sheep

Strongyloides papillosus eggs were eliminated from the feces of lambs treated *per os* by capsule with 75 to 100 mg. of cadmium iodide per kilogram of body weight or with 100 mg. of cadmium oxide/kg of body weight. Eggs were still absent 3 to 4 months later in 2 lambs treated with 100 mg./kg. cadmium iodide, but a few were present a month later in a third. Cadmium chloride at the rate of 100 mg./kg. eliminated the great majority of *S. papillosus* eggs. Diarrhea and loss of weight were observed in some of the treated animals, but these were not serious.—[*Norman D. Levine and Joseph Szanto: The Effect of Cadmium Compounds on Strongyloides papillosus in Sheep. Am. J. Vet. Res., 21, (Jan., 1960): 84-85.*]

Cataracts in Turkeys

Spontaneous cataracts are described in 7 turkeys. This lesion was first observed in birds less than 3 months old. The lens changes frequently progressed until vision was markedly decreased. A detachment of the retina occurred in 2 of the 7 turkeys. There are indications that the etiologic factors in this lens degeneration may be the same as those in chickens with lymphomatosis.—*R. H. Rigdon: Spontaneous Cataracts in Turkeys. Am. J. Vet. Res., 20, (Nov., 1959): 961-965.*]

Classification of *Escherichia coli*

A review was made of the characteristics of the O, K, and H antigens of *Escherichia coli* and their use in the serologic classification of this microorganism. The role of certain *Esch. coli* serotypes isolated from diseases of animals is discussed.—[*P. J. Glantz: Serologic Classification of Escherichia coli. Am. J. Vet. Res., 20, (Nov., 1959): 1090.*

Pathology of Domestic Animals

A series of 487 lesions obtained by biopsy from the pathology division of the School of Veterinary Medicine, University of Minnesota, and the Registry of Veterinary Pathology of the Armed Forces Institute of Pathology were examined to ascertain the nature and frequency of oral diseases in domestic animals.

The specimens were obtained from 377 dogs, 44 cattle, 35 cats, 17 horses, 9 mules, 3 sheep, 1 burro, and 1 pig. Both neoplastic and non-neoplastic lesions were represented. Among the latter were cases of pyogenic granuloma, actinomycosis, actinobacillosis, eosinophilic granuloma, trichinosis, globidiosis, and odontoma.

The benign neoplastic lesions found in this series were fibromatous epulis of periodontal origin, canine oral papillomatosis, noncanine papillomata and the oral papillomata of bovine hyperkeratosis, chondroma, lipoma, adenoma, and nevus.

The most common malignant oral neoplasm in this series was canine melanoma, in contrast to squamous cell carcinoma observed by Withers and Cotchin in England. Other malignant neoplasms found in different animals were squamous cell carcinoma, basal cell carcinoma, carcinoma of the major and minor salivary glands, mast cell sarcoma, fibrosarcoma, chondrosarcoma, osteosarcoma, malignant lymphoma, rhabdomyosarco-

ma, transmissible venereal tumor, and "myelocytoma."

The incidence, clinical features and the macro- and microscopic nature of these lesions are discussed in detail.—[*R. J. Gorlin, C. N. Barron, A. P. Chaudhry, and J. J. Clark: The Oral and Pharyngeal Pathology of Domestic Animals—A Study of 487 Cases. Am. J. Vet. Res., 20, (Nov., 1959): 1032-1061.*]

New Books

The Examination of Animals for Soundness

This book rather thoroughly covers the art of the physical examination of animals for soundness. Every conceivable unsoundness is named and described. In addition, the significance of many unsoundness is discussed.

About half of the book is devoted to the examination of the horse. The author obviously not only knows horses but horse traders. Along with his detailed descriptions of unsoundnesses, he points out how many of them may be masked or disguised and how such masking can be detected.

One chapter deals with the teeth as a guide to age in animals. The physical examination of cattle is covered in detail in another chapter. Sheep, goats, and pigs are briefly discussed. The examination of the dog, especially the Greyhound, and also the cat is well described.

One might wish that the author had incorporated some sort of check list to follow. However the book itself is a systematic discussion of the examining process and the reader can readily develop a check list to his own liking.

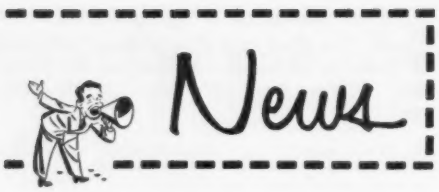
The book leaves one with the profound impression that there is far more to the physical examination of animals than a casual check for disease and the issuance of a health certificate. It deserves a place on the practitioner's bookshelf.—[*The Examination of Animals for Soundness. By R. H. Smythe. 145 pages. Charles C Thomas, Springfield, Ill. 1959. Price $3.75.*]—W. O. KESTER.

Diagnosis of Veterinary Parasitisms

This handbook, designed to aid student, pathologist or practitioner in the identification of the common arthropods and helminths of domestic animals, contains many excellent illustrations. It does not have photomicrographs of helminth eggs and some other material which might be expected in a handbook on diagnosis, since the author avoided the duplication of material found in available diagnostic monographs.

The parasites are covered systematically, and appropriate keys are included. Adequate bionomic information is given to relate the problem of diagnosis to life history and host-parasite relationships. Most of the book is devoted to information which can help answer the question "What is the parasite?". In the introduction, the author emphasizes the importance of differentiating between infection (the mere presence of the parasite) and disease (the pathogenic process caused by the parasite).

This book will be of greatest value to students, as a laboratory guide, and to laboratory workers. It contains much information of interest to the practitioner, but unless he has used it while a student he will probably find it of limited value since it is designed to cover primarily the identification of the parasite rather than all aspects of diagnosis of parasitism.—[*Diagnosis of Veterinary Parasitisms. By J. H. Whitlock 236 pages. 98 figures. Lea & Febiger, Washington Square, Philadelphia 6, Pa., 1960. Price $10.00*]—W. S. BAILEY.



Dues and Fees Levied by Constituent Associations

The conferees at the First Annual Conference of AVMA Constituent Association Secretaries in November, 1959, were polled on their respective dues, registration fees, and sponsorship of exhibits.

The diverse financial structures of each organization interested several of the attendees who expressed a wish for this information.

Since not all the secretaries were present, a written survey was made, and the following report is the result. All the figures tabulated are the latest ones that the various associations have used. Several organizations are contemplating changes or have recently introduced changes. Where these facts have been given, we have recorded them.

States, Provinces, Territories, Etc. . .	Dues	Registration Fees	Exhibits
Alabama	$10	$15	Yes
Alaska	None	None	No formal state mtg.
Alberta	$25	$10	Sometimes
Arizona	$15	$5 to $7.50	Yes
Arkansas	$10	$15	Yes
British Columbia	$50—Practitioners $15—Nonpractitioners $5—Out-of-Province	None—for meetings generally	None for provincial meetings, if larger—yes
California	$30—Members $7.50—Graduates, Out-of-State, and Retired	$7.50—Members $5—Service $7.50—Govt. $15—Nonmembers	Once a year
Canadian V.M.A.	$10	$5	Yes
Canal Zone	None	None	No
Colorado	$25 $5—Out-of-State Associate	$3—Members $12—Nonmembers	Yes
Connecticut	$15—$5 of which goes into a Special Reserve Fund	No	No—but under consideration
Delaware	$5—up from $3 last year	None	No
District of Columbia	$5	None for members $3—Nonmembers	No—occasionally scientific; never any commercial
Florida	$10 to $25—depending upon classification	$10	Yes
Georgia	$10	$5	Yes
*Hawaii	.....	.....	.....
Idaho	$15	$5—Nonmembers	Sometimes
Illinois	$20	$5	Yes
Indiana	$15	None	Yes
Iowa	$35	$5	Yes
Kansas	$25	None for members $3—Nonmembers	Yes
Kentucky	$15	$5	Yes
Louisiana	$20	$5	Yes
Maine	$10	None	No
Manitoba	$13	$2—plus social functions	Yes
Maryland	$10	$5	No
Massachusetts	$15	None	No

Continued

States, Provinces, Territories, Etc. . .	Dues	Registration Fees	Exhibits
Michigan	$20	$3	Yes
Minnesota	$20—Active members $10—Affiliate members	None for members $5—Nonmembers	Yes
Mississippi	$10	$10	Yes
Missouri	$20	$5	Yes
Montana	$10	$12.50	No
National Association of Federal Veterinarians	$5	None	No
Nebraska	$25	No—considering a fee at 1960 mtg.	Yes
Nevada	$10	None for members—dues counted as registration fee. $7.50—Nonmember	Yes
New Brunswick	$18	$25	Sometimes
New Hampshire	$10	None	No
New Jersey	$10—to be increased	None	Yes—just begun
New Mexico	$15—for 1960-'61; Pre 1960—$5	$10—higher for nonmembers	Yes
New York	$45	$5—Members $20—Nonmembers within the state	Yes
North Carolina	$10—Practitioners $5—Salaried man	$7.50	Yes
North Dakota	$10	$4	No
Nova Scotia	$20	Not to exceed $5	No
Ohio	$20	$5	Yes
Oklahoma	$15	$5	Yes
Ontario	$35	$5	Yes
Oregon	$15	$5	No
Pennsylvania	$25—Active membership $10—Associate members	$5—Members of any state association $10—Nonmembers of a state association	Yes
*Prince Edward Island	.....	.....	.....
Puerto Rico	$10	$5—Initiation fee; waived if solicitant is already a member of AVMA	Sometimes
Quebec	$25	$20—Men $10—Women	Yes
Rhode Island	$10	$5	Sometimes
Saskatchewan	$30—includes memberships in Canadian V.M.A. and subscriptions to its Journal	$20	Yes
**South Carolina	$15	$6 (average)	Yes
South Dakota	$25	Annual dues includes registration fee	No
Tennessee	$25	$10	Yes
Texas	$40	Varies	Yes
Utah	$10	No—but presently under consideration	No
Vermont	$10	None	Yes
Virginia	$10	$5	Yes
Washington	$35	$7.50 (1959); $5 (1958)	Yes
West Virginia	$10	$5	Yes
Wisconsin	$20	None	Yes
Wyoming	$10	$10 (1959); prior to this time, $5 or less in most years.	Yes

*No replies were received from this state and province.

**These figures were taken from a voice-tally at the First Annual Conference of AVMA Constituent Association Secretaries; a written reply from this state was not returned.

It's the Sixth Year for Ralston Purina Scholarships

This will be the sixth year for the Ralston Purina Scholarships. During the first five years, the program assisted 265 students in finishing their senior year.

In the next school year, 54 outstanding seniors in colleges of agriculture located throughout North America and in the United States territorial possessions will be completing their undergraduate work with the assistance of the Ralston Purina Scholarship program.

The $500 scholarship is awarded to one

deserving incoming senior at each of the 50 United States land-grant colleges. It is also awarded in three Canadian agricultural colleges and in one college in Puerto Rico. The student selected to receive the scholarship is recommended by a scholarship committee consisting of faculty members of the college.

Letters have been sent by the Ralston Purina Company to all the eligible colleges offering the 1960-1961 scholarships. The faculty committee chooses the recipient on the basis of his scholastic record, participation in campus affairs, and eligibility for financial assistance.

Dr. E. Jacques Succeeds the Late Dr. Labelle as Director of Quebec's Veterinary School

Appointment of Dr. Ephrem Jacques (MON '42) as the new director of the School of Veterinary Medicine at The University of Montreal, Saint Hyacinthe, Que., was announced March 2, 1960. He had been assistant director, prior to this assignment.

Dr. Gustave Labelle had been director of the School from 1942 until his death in an auto accident on February 5 (see p. 474). The position vacated by Dr. Jacques' appointment is now occupied by Dr. Jacques Saint-Georges (see below).

Dr. Ephrem Jacques

Born in Southbridge, Mass., Dr. Jacques received his early education in Quebec and later also conducted his veterinary practice there. Following his graduation from veterinary school, he opened his practice at Sherbrooke. A year later, he moved to Richmond where he remained in practice until 1957.

At that time, Dr. Jacques was made a professor in the School of Veterinary Medicine at the University of Montreal. Then in September of the same year, he became associate director of the School.

Dr. Jacques has been president of the senior chamber of commerce in Richmond, the first French language mayor of the municipality of Cleveland in Richmond County, prefect of the county, and commissioner of schools. In addition, he is governor of the College of Veterinarians of the Province of Quebec.

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Dr. Saint-Georges Appointed Assistant Director at Saint Hyacinthe

Dr. Jacques Saint-Georges (MON '40) was made assistant director of the School of Veterinary Medicine, University of Montreal, upon Dr. Ephrem Jacques' accession to the School's directorship last March. Dr. Saint-Georges will also retain his position as secretary of the institution.

Upon graduation from veterinary school in 1940, Dr. Saint-Georges engaged in public hygiene and for two years, served Drummond County as health inspector. He then became a federal inspector for the Ministry of Agriculture.

In 1942, he was made professor of histology and since the establishment of the School of Veterinary Medicine at Saint Hyacinthe in 1947, Dr. Saint-Georges has been its secretary and public relations officer.

Beside participating in Canadian broadcasts for the past 20 years, Dr. Saint-Georges is a member of the studies commission of the University of Montreal, a member of the committee of cultural and scientific relations of the College of Veterinarians of the Quebec Province, and president of the committee of public relations.

He is also a member of the Canadian V.M.A.'s council and vice-president of the Society of Veterinary Medicine of the Province of Quebec (region of Montreal), among many other civic, cultural, and scientific affiliations.

Plan Event in Honor of Dr. W. H. Martin May 26

NEW BRUNSWICK.—The board of managers of the Agricultural Experiment Station at Rutgers University has announced plans for an informal dinner on May 26, 1960, honoring Dr. William H. Martin, (Ph.D. and D.Sc.) who will retire soon as director of the station. He is also dean of the College of Agriculture and director of the Cooperative Extension Service.

Letters are going out to his friends and associates—calling attention to the event in honor of Dr. Martin so that those who wish can show their appreciation for his 45 years of service as a scientist and leader.

George G. Trautwein of Closter, former president of the board of managers, is chairman of the dinner committee. Beginning at 5:30 p.m., it will take place in a tent at the College of Agriculture.

Governor Meyner will speak for the state of New Jersey in expressing the appreciation of its people for Dr. Martin's accomplishments.

Plans for the occasion also include presentation of a scholarship fund in Dr. Martin's name. Income from the fund will be used for the advancement of knowledge in the general scientific fields served by the College of Agriculture and the experiment station.

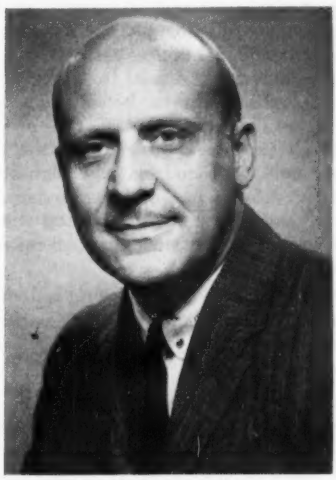
Dr. J. J. Stockton New Head of Department of Microbiology and Public Health at M.S.U.

Dr. Jack J. Stockton, East Lansing, was appointed head of Michigan State University's Department of Microbiology and Public Health on Jan. 1, 1960.

A native of Saint Paris, Ohio, Dr. Stockton obtained his D.V.M. from Ohio State University in 1943. In 1944, he was commissioned a first lieutenant in the Veterinary Corps, AUS, and served until June, 1947, with the rank of captain.

Dr. Stockton joined the faculty of the Department of Microbiology and Public Health at Michigan State University as an instructor on July 1, 1947. He was promoted to assistant professor in July, 1950, and to associate professor in July, 1959. During these years, he taught pathogenic bacteriology, immunology, instrumentation, and parasitology; his primary research activities have been bovine vibriosis and trichomoniasis, canine filariasis, and freeze drying.

In 1950, Dr. Stockton received his M.S. degree in bacteriology from Michigan State. He is co-author of a laboratory manual for pathogenic bacteriology and a manual for



Dr. Jack J. Stockton

immunology. From 1953 to 1959, he was secretary-treasurer of the National Society of Phi Zeta.

Dr. Stockton spent the summer of 1956 at the University of Michigan Biological Station on a National Institute of Health Fellowship studying amoebiasis in snakes; the summer of 1959, he made a study of leucocytozoon infection in ducks and geese there. He is currently completing requirements for his Ph.D. degree in epidemiologic science from the School of Public Health at the University of Michigan, Ann Arbor.

Among the various associations Dr. Stockton holds membership in, are: the AVMA, American Society of Parasitologists, American Association of Veterinary Parasitologists, Michigan Branch of the Society of American Bacteriologists, National Society of Phi Zeta, and the Conference of Research Workers in Animal Diseases.

Announcing the Gordon Research Conferences

The Gordon Research Conferences for 1960 will be held from June 13 to Septem-

ber 2 at Colby Junior College, New London, N. H.; New Hampton School, New Hampton, N. H.; and Kimball Union Academy, Meriden, N. H.

The conferences were established to stimulate research in universities, research foundations, and industrial laboratories through an informal type of meeting consisting of scheduled lectures and discussion groups. Scientists in related fields become acquainted, and valuable associations are formed that often result in collaboration and cooperative efforts between different laboratories. The purpose of the program is to bring experts up to date on the latest developments, to analyze the significance of these developments, and to provoke suggestions concerning the underlying theories and profitable methods of approach for making progress.

Attendance is by application. Individuals interested in attending the conferences are requested to send their applications to the director at least two months prior to the date of the conference. *All applications must be submitted on the standard application form which may be obtained by writing to the office of the Director.* Attendance at each Conference is limited to approximately 100 conferees.

An effort will be made to distribute the attendance as widely as possible among the various institutions and laboratories represented by the applications. A registration card will be mailed as soon as possible to those selected. Advance registration by mail for each conference is required and registration is completed on receipt of the card and a deposit of $15.

The Board of Trustees of the Conferences has established a fixed fee of $100 for resident conferees at each Conference. This fee will be charged regardless of the time a conferee attends the Conference—that is, for periods of from one to four and one-half days. It is divided as follows: registration fee—$40 ($15 for administration and $25 for the Special Fund); room and meals—$60 (including gratuities), for five days. When special circumstances warrant a request to live elsewhere, permission must be obtained from the director. If the request is approved, these nonresident conferees will be charged $50.

For additional information, write: Mr. W. George Parks, Director, Department of Chemistry, University of Rhode Island, Kingston, R.I. From June 13 to September 2, mail should be addressed to Colby Junior College in New London, N.H.

s/W. GEORGE PARKS, *Director.*

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International Meeting on Veterinary Education Convenes in London

The Food and Agriculture Organization of the United Nations sponsored an international meeting on veterinary education at the Church House in Westminster, London, England, April 25-29, 1960. This conference followed other regional meetings on the same subject held, in 1955, in India for the Far East sector and, in 1957, in Iran for the Near East.

The United States delegation was composed of the following prominent veterinarians: Dr. C. K. Mingle, chief, Brucellosis Section, Animal Disease Eradication Division, ARS, USDA, and chairman of the U.S. delegation; Mark W. Allam, dean, School of Veterinary Medicine, University of Pennsylvania; Carl A. Brandly, dean, College of Veterinary Medicine, University of Illinois; Glenn C. Holm, dean, College of Veterinary Medicine, Oklahoma State University; W. R. Krill, dean, College of Veterinary Medicine, Ohio State University; Thomas J. Jones, dean, School of Veterinary Medicine, University of Georgia; and T. Lloyd Jones, dean, Ontario Veterinary College, University of Toronto.

The AVMA's representatives to the U.S. delegation were: Drs. C. K. Mingle, a member of the AVMA Council on Education, and Mark W. Allam, who is a member of the AVMA Executive Board.

This 1960 convention evaluated the results of the previous meetings and surveys which have been carried out by FAO in the Far East, Latin America, and the Near East regions in a further attempt to coordinate veterinary teaching throughout the world—particularly in the under-developed areas.

Among the States and Provinces

California

DAVIS—DR. STRAUB RETURNS TO EUROPE.—Dr. Otto C. Straub recently left the University of California to return to Germany by way of Australia and the Far East. Dr. Straub, who was born in Germany and received his professional training at the Hannover and Vienna veterinary colleges, received his degree from Hannover in 1956. He came to the University of California in October, 1956, on a one-year scholarship from the German Academic Exchange Service and a Fullbright travel grant.

On July 1, 1957, he joined the staff of this school, serving in both the ambulatory clinic and in the Department of Microbiology. Dr. Straub's visit was an outstanding success in its objective of comparing and exchanging ideas on veterinary education, teaching practices, and research between Germany and the United States. He became a valuable instructor in the clinic and a productive researcher, as indicated by his participation in the publication of more than six research papers.

Colorado

FORT COLLINS—SOCIETY FOR STUDY OF BREEDING SOUNDNESS IN BULLS ELECTS OFFICERS.—Dr. Harold J. Hill of Denver was elected chairman of the Society for Study of Breeding Soundness in Bulls at the group's annual meeting at Colorado State University recently.

Dr. Hill, director of the Beef Cattle Improvement research project for Armour and Company, previously served as secretary-treasurer. Dr. James Bell, veterinarian for the Cache Valley Breeding Association, Logan, Utah, was named vice-chairman and, Dr. E. J. Carroll, instructor in veterinary clinics at C.S.U., was elected secretary-treasurer. Dr. James Scott, C.S.U. veterinary clinics instructor, and Dr. R. A. Ivie, Follett, Texas, were named to the board of directors.

The national society is composed of veterinarians who work on bull testing and evaluation. One of the main objectives of the organization is to standardize methods and tests used in examining and evaluating bulls.

At this Colorado State meeting, the group outlined plans to incorporate the organization and adopted a constitution and bylaws. The convention followed a two-day short course for the evaluation of bulls as to breeding soundness at C.S.U. Approximately 75 veterinarians attended.

Connecticut

HARTFORD—STATE ASSOCIATION HOLDS CONVENTION.—The annual meeting of the Connecticut V.M.A. was held in the Hotel Bond on February 3.

The program included "Problems in Cat Practice" by Dr. C. E. DeCamp, representative of the Pitman-Moore Company, Scarsdale, N.Y., and "Leptospirosis in Large Animals" by Dr. E. F. Stula of the staff of

Newly-elected officers of the Society for Study of Breeding Soundness in Bulls are, left to right—Drs. Harold J. Hill, Denver, chairman; James Bell, Logan, Utah, vice-chairman; E. J. Carroll, Fort Collins, secretary-treasurer; James Scott, Fort Collins, board member; and R. A. Ivie, Follett, Texas, board member. They were elected at the organization's annual meeting at Colorado State University recently.

the Department of Animal Diseases, University of Connecticut, Storrs.

Following is the Association's new roster: Drs. Harmon C. Leonard, Cheshire, president; Raymond C. Church, Winsted, first vice-president; Lewis I. Case, Whethersfield, second vice-president; and E. H. Patchen, Milford, secretary-treasurer.

Dr. Robert L. Alkire, West Hartford, was elected a new member of the executive board and Dr. Robert A. Rands, Stamford, was elected chairman of the board.

s/E. H. PATCHEN, *Executive Secretary.*

District of Columbia

WASHINGTON—NEW OFFICERS ELECTED AT DISTRICT MEETING.—The first regularly scheduled meeting of the District of Columbia V.M.A. was held at the Armed Forces Institute of Pathology recently and a new roster was elected as follows: Drs. Robert J. Byrne, president; Roland Rushmore, president-elect; Louis Sardo, vice-president-elect; and E. E. Ruebush, secretary-treasurer.

Dr. C. D. Van Houweling was selected as delegate to the AVMA Convention in Denver and Dr. Raymond J. Currey was chosen the alternate delegate. Dr. Charles McPherson is editor of the Association's newsletter.

s/E. E. RUEBUSH, *Secretary.*

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WASHINGTON—DR. GUTHRIE APPOINTED TO VETERINARY MEDICAL BRANCH.—The Bureau of Medicine, Food and Drug Administration, announced the appointment of Dr. J. E. Guthrie (OSU '38) as an officer in the veterinary medical branch.

Dr. Guthric was formerly associate director of research for the Hess and Clark division of the Vick Chemical Co., in Ashland, Ohio. For the past 19 years, he has been responsible for the company's feed-additive research as it pertained to farm animals.

Prior to joining Hess and Clark's research staff, he was associated with the zoological division of the former BAI at Beltsville, Md.

Illinois

KANKAKEE—TENTH GAINES SYMPOSIUM SCHEDULED FOR OCT. 12.—Oct. 12, 1960, has been picked as the date of the tenth annual veterinary symposium on "The Newer Knowledge About Dogs," held annually under sponsorship of the Gaines Dog Research Center.

This is approximately the same date on which the nine previous symposia have been held. Since this will be the tenth annual event, a particularly important program is being planned.

The October 12 symposium, open only to veterinarians, will again take place in the Kankakee Civic Auditorium and Dean C. A. Brandly of the University of Illinois, School of Veterinary Medicine, will again serve as chairman of the day-long program.

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CHICAGO—CITY ASSOCIATION HOLDS POSTGRADUATE COURSE IN OPHTHALMOLOGY.—Dr. William Magrane (MSU '40), Mishawaka, Ind., conducted a four-day postgraduate course in canine ophthalmology, March 20-23, 1960, at the Cook County Graduate School of Medicine.

The course was limited to 24 students and a fee of $75 was charged. Part of the course's instruction comprised 350 kodrachrome slides and three 16-mm. movies on surgery. Mimeographed lecture notes were also furnished.

The laboratory session included: the use of the ophthalmoscope, cauterization, bandaging, flushing of nasolacrimal ducts, dissection of conjunctiva and membrana nictitans, subconjunctival injections, paracentesis, canthotomy, retrobulbar injections, superficial keratectomy, iridectomy, iridencleisis, and corneal sections, e.g. in cataract surgery.

Indiana

TERRE HAUTE—SEVENTH DISTRICT V.M.A. MEETS.—The Seventh District V.M.A. held its first regular meeting of 1960 on February 19, at the Terre Haute House. Twenty-five veterinarians attended.

Dr. H. J. Hardenbrook of the Large Animal Clinic Staff at the University of Illinois discussed "Sterility in Cattle."

s/DR. D. K. MILLER, *Secretary.*

Iowa

ANKENY—CENTRAL ASSOCIATION MEETS.—Drs. Maynard L. Spear, Ames, and Bertrand O. Combs, Conrad, discussed the "Rearing of Disease-Free Swine" at the February 22 dinner meeting of the Central Iowa V.M.A.

s/S. L. HENDRICKS, *Secretary.*

DES MOINES—DR. MEYER TRANFERS TO WASHINGTON, D. C.—The transfer of Dr. N. L. Meyer from the U.S. Department of Agriculture's Animal Disease Eradication activities in Des Moines will become effective on June 15, 1960. Dr. Meyer will then be working as assistant chief staff officer, in emergency diseases.

Dr. N. L. Meyer

Born in Deerfield, Kan., Dr. Meyer received his D.V.M. degree from Kansas State University in 1947. Since 1950, he has been employed by the Animal Disease Eradication Division of the U. S. Department of Agriculture and has served in Iowa, Indiana, and Illinois.

From January, 1950, to April, 1953, Dr. Meyer worked on the foot-and-mouth disease eradication program in Mexico. Dr. Meyer has received special training in vesicular disease diagnosis.

Maine

ORONO—HITCHNER HALL DEDICATED.—Dedication ceremonies for Hitchner Hall at the University of Maine were held on Feb. 13, 1960. Several hundred persons were in attendance.

The building was named in honor of a former head of the Department of Bacteriology there, Dr. E. R. Hitchner who is well-known for his work with the pullorum eradication program. It houses the departments of animal pathology, bacteriology, biochemistry, poultry science, and a segment of animal science. Equipment for the new animal pathology laboratories is currently being installed. *The Maine Veterinarian, 21, (April, 1960): 9.*

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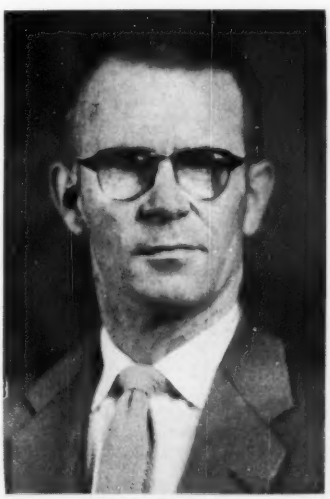
WATERVILLE—WINTER MEETING OF THE STATE ASSOCIATION.—The regular winter meeting of the Maine V.M.A. met at the Jefferson Hotel on Jan. 13, 1960.

Dr. Philip Brown, Belfast, reported on the Board of Examiner's conference in Boston, Mass. He also delivered Dr. Russell Abbott's (Rockland) report on the state secretaries and delegates portion of the New England V.M.A. convention. In addition, Dr. Frank Hersom, Augusta, discussed the New York State Veterinary College and Dr. Douglas Brown (M.D.), Portland Public Health Department, presented his views on "Public Health Problems and the Veterinarian."

The Maine V.M.A.'s newly elected roster is: Drs. John Woodcock, Pittsfield, president; Camille Gardner, Lewiston, vice-president; and Frank Witter, Orono, secretary-treasurer.—*The Maine Veterinarian, 21, (Jan. & April, 1960): 1-2, respectively.*

Michigan

LANSING—DR. SCOTT TRANSFERS TO WASHINGTON, D. C.—The transfer of Dr. R. M. Scott from the U. S. Department of Agriculture's Animal Disease Eradication activities



Dr. R. M. Scott

in Lansing, will become effective in June, 1960. In his new assignment, Dr. Scott will be working with Dr. A. F. Ranney in tuberculosis eradication, as assistant chief staff officer.

Born in Dearborn, Mich., Dr. Scott received his D.V.M. degree from Michigan State University in 1949. From 1949 to 1953, he was employed with the Michigan Department of Agriculture, Livestock Disease Division. Since 1953, he has been with the Animal Disease Eradication Division of the USDA. He served as area veterinarian from 1953 to 1955 and as district veterinarian from 1955 to 1957. In 1957, Dr. Scott became tuberculosis project leader on the Michigan force.

New York

NEW YORK CITY.—The regular meeting of the Veterinary Medical Association of New York City, Inc., met March 2, 1960, at the New York Academy of Sciences.

This was the last session to be held at the Academy. Meetings in the future will be conducted at New York University Bellevue Medical Center, 550 First Ave., in New York City, October to June inclusive.

The March 2nd program featured Dr. Serge Renaud from the University of Montreal, Canada, who spoke on "Recent Progress in Stress Research." He illustrated his discussion with slides.

Nova Scotia

TRURO—MARITIME COMMITTEE MEETS.—In order to prepare for the twelfth annual convention of the Canadian V.M.A., members of the Maritime Committee met at the Nova Scotia Agricultural College in March and laid the ground work for the national association's annual meeting, July 24-27, 1960, in Halifax.

Beside furthering plans for the convenience of the 500 veterinary family members expected, Dr. Mitton's committee confirmed that the entertainment at the president's ball will definitely be the C.B.C. TV headliners, Don Messer and His Islanders. A lobster supper at Silver Sands beach and an informal evening at the Jubilee Boat Club (complete with boat cruises) will round out the chief entertainment.

Also attending the meeting were: former national president, Drs. R. McG Archibald (ONT '37), and P. D. McKercher (ONT '50), both of the Atlantic Area Animal Pathology Laboratory, Sackville, N.B.; M. D. Harlow (ONT '48), Dartmouth, N.S., convention secretary; and Dr. (ONT '42) and Mrs. K. R. Ainslie, Halifax. Drs. A. R. Ross (ONT '52) and H. van Zwol (UT '36), both of Truro—made the local arrangements. Dr. J. Duncan Smith (ONT '52), Kentville, president of the Nova Scotia V.M.A. and chairman for registration, was unable to be present as he was in Ontario representing Nova Scotia in the MacDonald Brier (national curling championships).

Some of the members of the Maritime Committee planning the 12th annual convention of the Canadian V.M.A. are shown as their national president drew the name of Dr. C. C. Stewart, Windsor, Ont. "from the hat" as the winner of free registration to the convention in Halifax. Left to right, are: Dr. H. E. Knapp, Moncton (ONT '40), president of the New Brunswick V.M.A.; Mrs. A. Ross Mitton, R.N., Dartmouth, who is in charge of the program for women and children; Dr. A. Ross Mitton, Dartmouth (ONT '52), general chairman of the July convention; Dr. George C. Fisher, Charlottetown (ONT '44), national president.

Oklahoma

TULSA—CITY ASSOCIATION ELECTS OFFICERS—On March 7, 1960, the Tulsa Association of Small Animal Veterinarians elected the following officers: Dr. Robert Featherston, chairman; and Glen A. Harbert, secretary-treasurer.

Executive board members are: Drs. Don L. Hohmann and Dr. Robert L. Lawrence. The Association is a study group of about 20 veterinarians who treat small animals. Meetings are held twice a month in the new City Council Health Building.

s/GLEN A. HARBERT, *Secretary.*

Oregon

PORTLAND—PACIFIC NORTHWEST CONFERENCE.—The 1960 Pacific Northwest Veterinary Association's Conference was held at the Hotel Benson, February 4-6. Sponsored by the Oregon V.M.A., 258 registered—of whom 150 were veterinarians.

Key figures at the Pacific Northwest V.M.A. conference February 4-6 in Portland were, left to right—Dr. Dallen H. Jones, Roseburg, Oregon V.M.A. president; Dr. Sam F. Scheidy, AVMA president and key conference speaker; Dr. Roy H. Peterson, Tillamook, newly-elected president of the Oregon V.M.A.

The program included the following speakers: Drs. Lavon M. Koger, Ontario—pregnancy diagnosis in the bovine; Rue Jensen, Fort Collins, Colo.—diseases of feedlot cattle and veterinary education in Russia; John R. Gorham, Pullman, Wash.—bluetongue in sheep and a feline respiratory tract infection; William K. Riddell, Los Angeles, Calif.—a junior partner and caudal anesthesia in small animals; Kermit J. Peterson, Corvallis—developments in bovine mastitis; James Archibald, Guelph, Ont.—urinary tract surgery in small animals and musculoskeletal diseases of small animals; W. P. Heusckele, San Diego, Calif.—handling unusual pets; George R. Burch, Indianapolis, Ind.—developments in small animal practice and new clinical research in large animals; Herbert G. Stoenner, Hamilton, Mont.—leptospirosis of domestic animals; and Orville J. Halverson, Salem, Ore.—the veterinarian in civil disaster.

Newly elected officers of the Oregon V.M.A. are: Drs. Roy H. Peterson, Tillamook, president; R. C. Story, Molalla, president-elect; and O. H. Muth, Corvallis, secretary-treasurer.

s/O. H. MUTH, *Secretary.*

Washington

SPOKANE—NEW INLAND EMPIRE ROSTER FOR 1960.—The newly elected officers of the Inland Empire V.M.A. for 1960 are as follows: Drs. F. A. Hunter, president; Ralph Torney, vice-president; and William F. Daut, Jr., secretary-treasurer. All are from Spokane.

s/WILLIAM F. DAUT, JR. *Secretary.*

Foreign News

Mexico

MEXICO CITY—DR. FORREST E. HENDERSON TRANSFERS TO SEBRING, FLA.—The transfer of Dr. Forrest E. Henderson from Mexico City, Mexico, to Sebring, Fla. will be effected on June 18, 1960. In his new assignment, he will be federal director of the joint state-federal screwworm eradication program.

Previous to this time, Dr. Henderson was stationed for two years at Mexico City, D.F., as co-director of the Mexico-United States commission for prevention of foot-and-mouth disease. He has spent ten years in Mexico in connection with the livestock disease control and eradication work which is carried on jointly by the Mexican and United States governments.

Born at Mountain Creek, Ala., Dr. Henderson received his high school education at Montgomery and his D.V.M. degree in 1943 from Auburn University.

Following three years in military service, he joined the USDA to work with its tuberculosis eradication program in California.

His first assignment in Mexico was in 1948. In 1952, he left to spend one year at Tulane University, New Orleans, La., where he obtained his M.S. degree in Public Health.

Dr. Forrest E. Henderson

He then returned to the Mexican assignment where he remained until his reassignment to the screwworm eradication program in Sebring.

In 1956, Dr. Henderson received a USDA cash award and citation for oustanding work in livestock disease eradication in Mexico.

State Board Examinations

ARIZONA—June 22-23, 1960, Arizona State College, Flagstaff, Ariz. Deadline for applications is June 12; the fee is $25. Dr. William E. Snodgrass, Secretary, 1612 W. Washington St., Phoenix, Ariz.

ARKANSAS—June 16-17, 1960, 2400 East Fifth St., Little Rock, Ark. Telephone # is Franklin 2-5129; the fee is $10. Dr. David Ibsen, 2400 East Fifth St., Little Rock, Ark., Secretary.

BRITISH COLUMBIA—June 4, 1960, Vancouver, B.C. The fee is $25. Dr. Kenneth Chester, Registrar, 2853 W. 33rd St., Vancouver, B.C., Can.

CALIFORNIA—June 14-16, 1960, School of Veterinary Medicine, University of California, Davis, Calif. Deadline for applications is 30 days prior to the examination for approved veterinary school graduates and 90 days for foreign applicants; the fee is $25. William E. Barbeau, Board of Examiners in Veterinary Medicine, 1020 N. St., Sacramento 14, Calif.

COLORADO—May 31-June 2, Colorado State University, Veterinary Hospital, Fort Collins, Colo. Deadline for applications is April 30; the fee is $25. Dr. V. D. Stauffer, Secretary, 5500 Wadsworth Blvd., Arvada, Colo.

CONNECTICUT—July 12-14, 1960, Hartford, Conn. Deadline for applications is July 2; the fee is $50. Dr. Salo Jones, Secretary, Room 285, State Office Building, Hartford, Conn.

DISTRICT OF COLUMBIA—June 26, 1960, Department of Occupations and Professions, 1740 Massachusetts Ave., N.W., Washington, D.C. Deadline for applications is June 2; the fee is $25. Dr. Alan F. McEwan, Secretary, Board of Examiners in Veterinary Medicine, 1740 Massachusetts Ave., N.W., Washington, D.C.

FLORIDA—June 13-15, 1960, Municipal Auditorium, Miami, Fla. (Headquarters—Biscayne Terrace Hotel). Deadline for applications is June 1, the fee is $25. Dr. E. F. Thomas, Secretary, Florida State Board of Veterinary Medical Examiners, 4937 S. Tamiami Trail, Sarasota, Fla.

GEORGIA—June 9-10, 1960, State Capitol, Atlanta, Ga. Applications should be on file in the office of the Joint Secretary at least 15 days prior to the date of the examinations; the fee is $10. Address: Joint Secretary, State Examining Boards, 224 State Capitol Building, Atlanta, Ga.

HAWAII—Sept. 22-24, 1960, Honolulu, Hawaii. Deadline for applications is Aug. 22; the fee is $25. Dr. Wilson M. Pang, Secretary, 1683 Kalakaua Ave., Honolulu 14, Hawaii.

IDAHO—June 9-10, 1960, Capitol Building, Boise, Idaho. Deadline for applications is May 10; the fee is $25. Miss Nan K. Wood, Director, Occupational License Bureau, Capitol Building, Boise, Idaho.

ILLINOIS—June 29-July 1, 1960, Chicago office of the Department of Registration and Education, 160 N. LaSalle St., Chicago, Ill. Deadline for applications is June 14; the fee is $20. Mr. Fredric B. Selcke, Superintendent of Registration, Capitol Building, Springfield, Ill.

INDIANA—July 12-13, 1960, State House, Indianapolis, Ind., at 8:00 a.m. Deadline for applications is 30 days preceding the day of the regular meeting for the applicants applying by examination; 15 days if applying by reciprocity. Those applying for examination, a $40 fee must accompany the application; for those coming in by reciprocity, the fee is $50. Dr. Joe W. Green, Secretary Veterinary Examining Board, State Board of Health Building, Room 422, 611 Park Ave., Indianapolis, Ind.

IOWA—May 31-June 1, 1960, Des Moines, Iowa. Applicants must be in the office of the Division of Animal Industry, State House, Des Moines, not later than 8:00 a.m., on May 31. Additional information may be obtained by writing: Dr. A. L. Sundberg, Chief, Division of Animal Industry, State House, Des Moines 19, Iowa.

KANSAS—May 31-June 2, 1960, Dykstra Building, Kansas State University, School of Veterinary Medicine, Manhattan, Kan. Deadline for applications is May 1; the fee is $10. Dr. Charles W. Bower, Secretary, 1128 Kansas Ave., Topeka, Kan.

KENTUCKY—July 25, 1960, Capitol Building, Frankfort, Ky. Deadline for applications is July 11; the fee is $25. For Applications and information, write: Mr. William E. Johnson, 319 Ann St., Frankfort, Ky. (A special June examination is usually given; the exact date has not been set.)

MAINE—July 11-12, 1960, Dr. Libby's office, 6th Floor, Office Building, Augusta, Maine. Deadline for applications is 15 days before the examination. There is a $20 fee with each application. Dr. E. C. Moore, Secretary, Turner Center, Maine.

MARYLAND—June 6-7, 1960, Symons Hall, University of Maryland, College Park, Md. The examination begins promptly at 8:00 a. m. Deadline for applications is June 1; the fee is $25. Dr. Harold S. Gober, Secretary, 5400 Park Heights Ave., Baltimore 15, Md.

MASSACHUSETTS—June 22-24, 1960, University of Massachusetts, Amherst, Mass. Deadline for applications is at least one week prior to the examinations date; the fee is $25. Dr Edward A. Zullo, Secretary, Board of Registration in Veterinary Medicine, Room 33, State House, Boston 33, Mass.

MICHIGAN—June 20-21, 1960, Veterinary Building, Room 146, Michigan State University, East Lansing, Mich., at 8:00 a.m. Deadline for applications is June 5; $25 fee is to accompany applications. Dr. John F. Quinn, Corresponding Secretary, Board of Veterinary Examiners, Sixth Floor, Lewis Cass Building, Lansing 13, Mich.

MINNESOTA—July 12-13, 1960, College of Veterinary Medicine, University of Minnesota, St. Paul Campus, St. Paul 1, Minn., at 8:00 a.m. each day. Deadline for applications is 30 days prior to the examinations; the fee is $25. Dr. A. C. Spannaus, Executive Secretary, Veterinary Examining Board, Route #1, Waconia, Minn.

MISSISSIPPI—June 21, 1960, Woolfolk State Building, Jackson, Miss. Deadline for the applications is June 11, the fee is $25. Dr. William L. Gates, Secretary, Box 417, Clarksdale, Miss.

MISSOURI—June 2-3, 1960, Veterinary Clinic, University of Missouri, Columbia, Mo. Deadline for the applications is 15 days prior to the date of the examination; the fee is $25. Dr. L. A. Rosner, Chairman, Box 630, Jefferson City, Mo.

MONTANA—June 20-22, 1960, Senate Chamber, Helena, Mont. Deadline for applications is May 31; the fee is $25. Dr. J. N. Safford, Secretary, Capitol Station, Helena, Mont.

NEBRASKA—May 9-10, 1960, State Capitol Building, Lincoln, Neb. Deadline for applications is 15 days prior to the examination date; the fee is $25. Mr. R. K. Kirkman, Director, Bureau of Examining Boards, 1009 State Capitol Building, Lincoln, Neb.

NEVADA—July 23, 1960, Tonopah, Nev. Deadline for applications is June 1; the fee is $10. Dr. E. H. Stodtmeister, 102 "B" St., Sparks, Nev.

NEW BRUNSWICK—June 10-11, 1960, in any provincial capitol. Must be in the office of the registrar, Dr. Claude Kealey, National Examining Board, P.O. Box 416, Ottawa, Ont., Can., by May 15; the fee is $25. Dr. R. H. Henry, Secretary, Box 338, Moncton, N.B., Can.

NEW HAMPSHIRE—July 5, 1960, State House, Concord, N.H. Deadline for applications is June 25; the fee is $15. Dr. J. P. Seraichick, Secretary, Board of Veterinary Examiners, Chesterfield Rd., Keene, N.H.

NEW JERSEY—June 24-25, 1960, State House, Trenton, N.J. Deadline for applications is June 14; the fee is $25. Dr. Robert R. Shomer, Secretary, 1680 Teaneck Rd., N.J.

NEW MEXICO—June 17-18, 1960, State Capitol Building, Santa Fe, N.M. Deadline is two weeks prior to the examination date; a $25 fee is to accompany applications. Dr. Edwin J. Smith, Secretary, State Board of Veterinary Examiners, P.O. Box 4385, Santa Fe, N.M.

NEW YORK—June 15-16, 1960 (practical), June 28-July 1, 1960 (written), at Ithaca, New York City, Buffalo, Syracuse, Rochester, and Albany, N.Y. Applications must be received 30 days before date of examination; the fee is $40. Mr. James O. Hoyle, 23 South Pearl St., Albany, N.Y.

NORTH CAROLINA—June 20-22, 1960, Grove Park Inn, Asheville, N.C. Dr. James I. Cornwell, Secretary-Treasurer, North Carolina State Veterinary Examining Board, P.O. Box 9038, Asheville, N.C.

NORTH DAKOTA—Oct. 12-13, 1960, Van Es Building, North Dakota Agricultural College, Fargo, N.D. Deadline for applications is about ten days prior to the examination date; the fee is $15. Dr. M. C. Hawn, Secretary, N. D. Veterinary Medical Examining Board, 1407-13th St. North, Fargo, N.D.

OHIO—June 6-8, 1960, Sisson Hall, College of Veterinary Medicine, Ohio State University, Columbus, Ohio. Applicants must be present at 8:00 a.m. on June 6. Dr. H. G. Geyer, Executive Secretary, Ohio Veterinary Medical Board, Ohio Departments Building, Room 720, Columbus 15, Ohio.

OKLAHOMA—May 22-25, 1960, Student Union Building, Oklahoma State University, Stillwater, Okla. Applicants must appear before the Board on May 22 at 2:00 p. m. if applying by reciprocity; if by examination at 7:30 p. m. on May 22. Deadline for applications was April 22; the fee $25. Dr. C. R. Love, Secretary, 4321 S. Lee, Oklahoma City, Okla.

OREGON—June 7-9, 1960, Hotel Multnomah, Portland, Ore., beginning at 8:00 a.m. on June 7. Deadline for applications is one month prior to the date of the examination; the fee is $25. Dr. C. R. Howarth, 135 N. Highway, St. Helens, Ore.

PENNSYLVANIA—June 16-17, 1960, School of Veterinary Medicine, University of Pennsylvania, 39th & Woodland Ave., Philadelphia, Pa. Deadline for applications is May 15; the fee is $20. Dr. Charles J. Hollister, Secretary, State Board of Veterinary Medical Examiners, Box 911, Harrisburg, Pa.

PUERTO RICO—Aug. 2, 1960, Division of Examining Boards, Comercio 452, Carrera's Building, San Juan, P.R. Deadline for applications is July 3; the fee is $10, the license fee is $5, and one P.R. Revenue Stamp of $1. Herminio Mendez Herrera, Secretary, Box 3271, San Juan, P.R.

RHODE ISLAND—July 12-13, 1960, Division of Animal Industry, 505 Veterans' Memorial Bldg., 83 Park St., Providence, R.I. Deadline for applications is July 1. Dr. Thomas E. Grennan, Secretary, Providence, R.I.

SASKATCHEWAN—June 21-23, 1960, University of Saskatchewan, Saskatoon, Can. Deadline for applications is June 1; the fee is $25. Dr. W. Turnbull, Health Department, City Hall, Saskatoon, Saskatchewan, Can.

SOUTH CAROLINA—June 16-17, 1960, Columbia, S.C. Deadline for applications is June 2; the fee is $25. Dr. H. L. Sutherland, Secretary, P.O. Box 87, Union, S.C., secretary.

SOUTH DAKOTA—June 20-21, 1960, South Dakota State College, Brookings, S.D., Deadline for applications is June 1; the fee is $10. Dr. M. O. Mitchell, Secretary, Veterinary Examining Board, State Office Building, Pierre, S. D.

TENNESSEE—June 27-28, 1960. Cordell Hull Building, Capitol Grounds, Nashville, Tenn. Deadline for applications is June 25; the fee is $25. Dr. T. H. Bullington. Secretary, R.F.D. #3, Fayetteville, Tenn.

TEXAS—May 30-June 1, 1960, A. & M. College of Texas, College Station, Texas. The completed application must be received in the Board office not later than 30 days before the examination date. Mr. T. D. Weaver, Executive Secretary, Texas State Board of Veterinary Medical Examiners, 207 Capital National Bank Building, Austin 16, Texas.

UTAH—June 30-July 1, 1960, State Capitol Building, Department of Business Registration, Salt Lake City, Utah. Applications should be submitted to Mr. Frank E. Lees, Director of the Department of Business Regulation and Registration Division, State Capitol Building, Salt Lake City, Utah, by June 15. Registration fee is $15.

VIRGINIA—June 30-July 1, 1960, Senate Chamber, Capitol Building, Richmond, Va. Deadline for applications is May 30; the fee is $25. Mr. T. N. Burton, Secretary, P.O. Box 1-X, Richmond 2, Va.

WASHINGTON—May 26-28, 1960, Wegner Hall, College of Veterinary Medicine, Washington State University, Pullman, Wash. Deadline for applications is May 11; the fee is $35. Mr. Thomas A. Carter, Administrator, Professional Division, License Department, Olympia, Wash.

WEST VIRGINIA—June 20, 1960, Capitol Building, Room E—117 (ground floor of the east wing), Charleston, W. Va. For applications and information, write: Dr. Harry J. Fallon, Secretary-Treasurer, 200 Fifth St. West, Huntington, W. Va.

WISCONSIN—June 27-28, 1960, Madison, Wis. Dr. A. A. Erdmann, Chief Veterinarian, State-Federal Cooperative Program, 6 West, State Capitol, Madison 2, Wis.

WYOMING—June 21-22, 1960, State Office Building (third floor, south wing), Cheyenne, Wyo. Deadline for applications is June 6; the fee is $25. Dr. G. H. Good, Secretary, State Office Building, Cheyenne, Wyo.

Deaths

Star indicates member of AVMA

Gustave Labelle (MON '18), 62, St. Hyacinthe, Que., Can., director of the School of Veterinary Medicine at the University of Montreal, died in an automobile accident at Fabreville on Feb. 5, 1960. His father, Dr. Joseph Labelle, was also a veterinarian.

Born in St. Eustache, Dr. Labelle began his studies at the College of St. Eustache. In

Dr. Gustave Labelle

1915 he entered the School of Veterinary Medicine, which at that time was in Montreal, and in 1918 at the age of 21, obtained his degree in veterinary medicine.

In September, 1918, Dr. Labelle opened his practice at Saint Eustache, succeeding his father. In 1928, the School of Veterinary Medicine then located at Oka, asked him to join their teaching staff, and in 1942, he was nominated director of studies there. In 1947, when the school was established at Saint Hyacinthe, Dr. Labelle became director of the School, the position he held at the time of his death.

An active man, devoted to the public cause and to his profession, he was connected with many councils and organizations. He was mayor of St. Eustache, president of the school commission, a member of the study commission of the University of Montreal, a member of the Board of Governors of the College of Veterinary Medicine in Quebec and a former president and co-founder of the Society of Veterinary Medicine of the Province of Quebec.

Dr. Labelle was the author of several books, viz: a compilation of veterinary, medical, and pharmaceutical subject matter and a book on veterinary deontology.

Samuel N. Meyers (KCV '13), 71, Bogoto, N.J., died Aug. 8, 1958, from cardial infarction.

After graduation, Dr. Meyers practiced at Perry, Mo. (1913-1917) and Stafford, Kan. (1919-1934). In 1934, he joined the former U.S. Bureau of Animal Industry and later was transferred to the USDA meat inspection division where he remained until his retirement in 1958.

George W. Pope (CVC '89), 93, Washington, D.C., former chief of the Animal Quarantine Division, died, Dec. 22, 1959. Dr. Pope was both a physician and a veterinarian.

Prior to entering government service, he practiced in Chicago, Ill., and Mobile, Ala. His first assignment with the U.S. Department of Agriculture entailed the inspection of export livestock at Boston at the time cattle were being shipped to Europe for slaughter.

In 1899, he was appointed superintendent of the animal quarantine station at Garfield, N.J., for the port of New York. Dr. Pope supervised the establishment of the present station at Clifton, N.J., in 1901, and continued to direct its operation until 1908.

After two years of tick eradication work on the Mexican Border, he transferred to Washington as assistant chief of the quarantine division; became acting chief in 1922 when its duties were included in the field inspection division; and in 1928, Dr. Pope became head of the agency. He retired in 1937 after 42 years with the Department, serving under nine secretaries of agriculture.

Fred E. Reid (CVC '13), 79, Washington, Iowa, died Nov. 6, 1959, after a long illness.

William A. Sellers (CIN '11), Paulding, Ohio, died Dec. 25, 1959, after a brief illness.

A native of Cincinnati, Dr. Sellers had practiced in Paulding and Defiance counties since his graduation from veterinary school. He was quite active in civic affairs and even served Paulding as mayor for three terms.

Women's Auxiliary

The wives of a graduate and an undergraduate present their views . . .

Student Auxiliaries

"Project Rocket," the highly praised display of the Washington Student Auxiliary in the exhibits at the Kansas City Convention, symbolized the launching of a student into the veterinary world. It could equally well have represented the student wives' activities which help to launch them as veterinary-wives after pushing-hubby-thru—good fellowship, sundry services, skill development projects, and endless classes.

Aside from the latter, these activities are spontaneous and would appear to have no real significance for the practice of the veterinary profession. Sometimes it seems that most of them center on money-making projects. But most certainly, this life is a preview of community and organizational life.

Underlying these activities is the basic desire of all the wives of veterinary students to be better-wives, mothers, and companions. These women are striving along with their husbands to work successfully with ever-widening groups of people, to help others less fortunate, and to develop their own talents and skills without slighting their responsibilities. And these attributes seem to be characteristic, in varying degrees, of student wives' groups.

The distinctive characteristic of the veterinary student wives' groups, however, is the educational program. Classes for wives of seniors, and sometimes others also, are conducted by many faculties. Most are lectures to acquaint the girls with terminology and to orient them to office procedures and to surgery; others are classes to teach proficiency in sterilization and simple laboratory techniques. Senior students in one school have even initiated a class for the auxiliary entitled "What We Want Our Wives to Know."

"If the wives get nothing else," one of the sponsors said, "we hope they learn a basic vocabulary, and that there is only one veterinarian in the family."

A veterinarian speaking on public relations before the Women's Auxiliary to the AVMA, in 1957, pointed out that the ministry is probably the only profession in which the wives work more closely with their husbands than in veterinary medicine. We think he and all other veterinarians must be pleased with the cooperation of the universities and the student auxiliaries in the outstanding preparation of the embryonic veterinary wife.

s/Mrs. C. M. (Edmar) Rodgers, *Vice-President for Student Auxiliaries and Student Awards.*

What a Veterinary Student's Wife Should Know

The life of a veterinary student's wife is a simple but intricate one. An understanding of human relations, faith, and a sense of responsibility are qualities she must possess if her husband is to achieve both a happy marriage and a successful career.

The veterinary student's wife should attempt to keep her desire for socializing and material things in second place to her responsibilities of being a mother, housewife, teacher, companion and, in many cases, provider. The veterinary student's wife should also attend the lectures, classes, and meetings that are conducted by faculty members of the school of veterinary medicine.

This life is not necessarily the easiest one but there is great compensation in knowing that you are an active part of your husband's future happiness.

Failures in business careers may often be attributed to a failure in human relations. Here, a veterinary student's wife can be of great help if she understands the problems and difficulties that her husband encounters day to day. With this knowledge, she is better equipped to give her husband a feeling of

Above are some of the attendees at a winter meeting of the Student Auxiliary Chapter at Tuskegee Institute. Left to right, are—(seated) Mrs. G. W. Cooper sponsor; Mrs. Barbara VanBuren; Mrs. Irma B. Matchett; Mrs. Lona Hayes; Mrs. Lorraine Cockrell, sponsor; Mrs. Sylvia Miranda; Mrs. Geraldine Clinkscale.

Standing—Dr. G. W. Cooper; Mr. VanBuren; Dr. E. G. Trigg; Mr. A. Matchett; Mr. N. L. Hayes; Mrs. Maudell Bing; Mrs. Romania Estep; Dr. T. S. Williams, dean; Dr. K. O. Cockrell; Mrs. Lonia Harrington; Mr. Carlos Miranda; Mr. Jerry Clinkscale.

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accomplishment in his undertakings at school, to show him that she is interested and impressed by his activities, and that she accepts the goal that he is striving to attain.

In her acceptance of her "veterinary-trainee," the wife gives her husband self-confidence and human kindness, together with that easy-to-get-along-with attitude. In this manner, she can help him to like himself better and he will usually respond by becoming more thoughtful and considerate.

Life is a miracle. Everytime that you can give your husband's spirit a lift or imbue him with more life and energy—you, the veterinary student's wife, are contributing to the preparation of this miracle.

s/IRMA B. MATCHETT, *President, Tuskegee Institute, Student Auxiliary Chapter.*

Report from the Ohio Auxiliary Chapter

The Student Auxiliary Chapter of the College of Veterinary Medicine at Ohio State University met Nov. 10, 1959. The program consisted of a panel discussion by four wives of practicing veterinarians. They included: Mrs. Billie Kersting, Dr. Lorraine Nielson, Mrs. Dora Purdy, and Mrs. Sammy Woodgeard. Questions discussed were:

Should the wife help her husband in his practice and should she continue after that?

Does a partnership practice give the husband and wife more time together and a better opportunity to vacation?

An internship before Practice? Advantages?

Is it possible to have a normal household in regard to meal regularity, attending church, shopping?

Should the wife become active in civic affairs?

How does one handle telephone calls in regard to advice, emergencies, and one's children answering?

What insurance is advisable to have for the practice?

What office hours are the best?

How does one bill?

How much adjustment is there to the new community and how is their acceptance to you?

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PENETRATION OF CHLORAMPHENICOL U.S.P. (CHLOROMYCETIN) INTO THE EYE
by Irving H. Leopold, Anna C. Nichols and Adolph W. Vogel. *Arch. Ophthalmology*, 44: 22 (July) 1950.

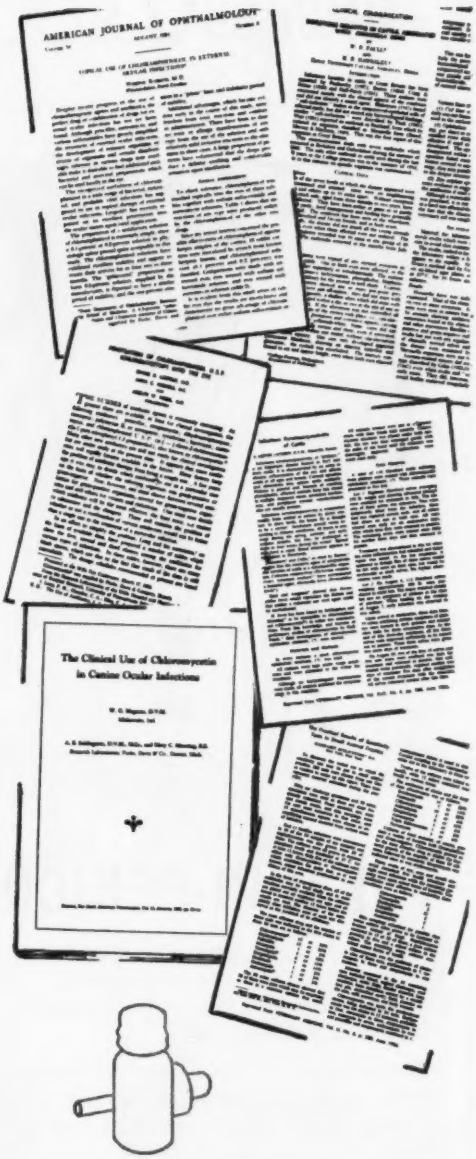
INFECTIOUS KERATOCONJUNCTIVITIS OF CATTLE
by S. Lester Jackson. *Vet. Med.*, 49: 260 (June) 1954.

THE PRACTICAL RESULTS OF SENSITIVITY TESTS IN SMALL ANIMAL PRACTICE
by Margaret Schlichting. *Vet. Med.*, 51: 280 (June) 1956.

TOPICAL USE OF CHLORAMPHENICOL IN EXYERNAL OCULAR INFECTIONS
by Winston Roberts. *Am. J. Ophthalmology*, 34: 1081 (Aug.) 1951.

THE CLINICAL USE OF CHLOROMYCETIN IN CANINE OCULAR INFECTIONS
by W. G. Magrane, A. S. Schlingman and Mary C. Manning. *North Am. Vet.*, 34: 39 (Jan.) 1953.

INFECTIOUS KERATITIS IN CATTLE, ASSOCIATED WITH MORAXELLA BOVIS
by W. B. Faull and M. B. Hawksley. *Vet. Rec.*, 66: 311 (May 29) 1954.



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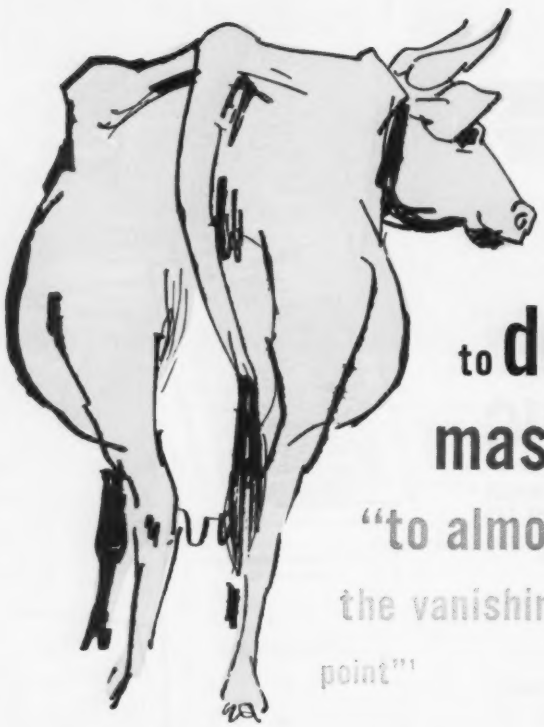

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1. Kakavas, J. C., et al.: J. Am. Vet. M. Ass. 119:203 (Sept.) 1951.

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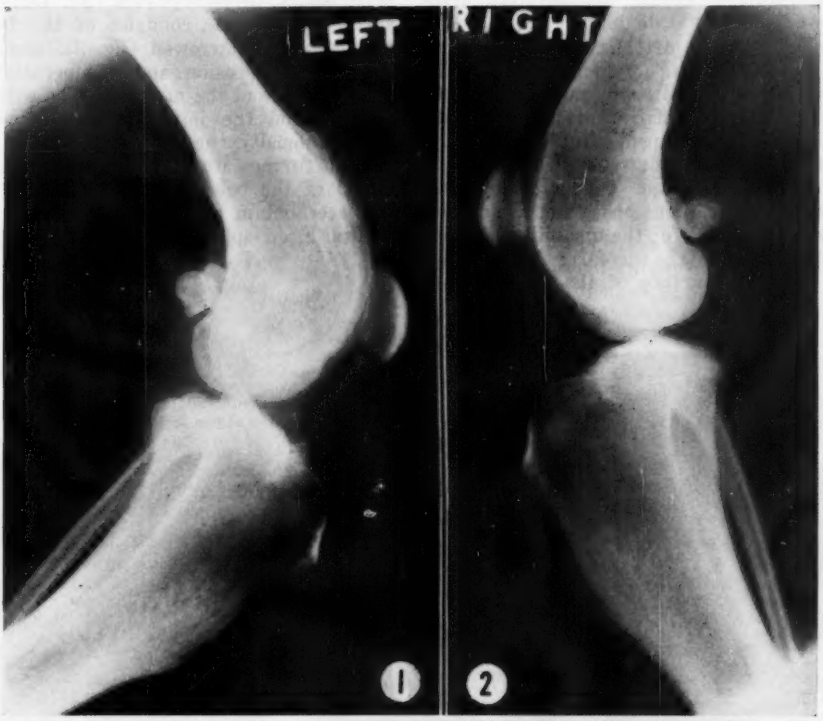

Fig. 1-3—Radiographs of both stifles of the dog.

History.—A female, nonspayed German Shepherd Dog, 5 years old, had been lame in the left hindleg for several months. During this time, there had been generalized atrophy of the leg muscles and enlargement of the stifle joint. The owner thought the lameness was the result of a sprain sustained while the dog was exercising but, when there was no improvement, the dog was brought in for examination. It was tranquilized and radiographed. Radiographs of both stifles are shown (fig. 1, 2, 3).

Here Is the Diagnosis

(*Continued from preceding page*)

Diagnosis.—Chronic degenerative arthritis of the left stifle joint. Notice the irregularity of the articular surfaces of the trochlea of the dog's femur (fig. 4A), the spines of the tibial condyles (fig. 4B), the increased density of the soft tissues in the area of the joint capsule (fig. 4C), and the narrowing of the joint space (fig. 3).

Comment.—Chronic degenerative arthritis has an insidious onset and usually appears in middle life; the disability becomes more marked as age increases. In this case, the trochlear surface of the femur shows small spurs, or osteophytes (fig. 4A). The space between the condyles of the femur and tibia has narrowed (fig. 3), undoubtedly due to erosion and degeneration of fibrocartilage of the meniscus. The soft tissues around the joint surfaces show increased density (fig. 4C).

As a further study in this case, a radiograph of the pelvis shows the rim of the left acetabulum to be shallow due to congenital hip dysplasia (fig. 5). This shallow-

(*Continued on adv. p. 38*)

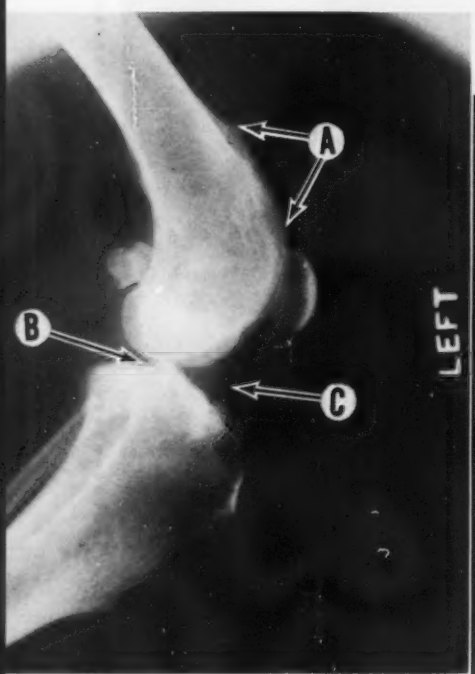

Fig. 4—Radiograph, medial view of stifle joint: (A) osteophytes of trochlear surface of femur, (B) irregularity of the spines of the tibial condyles, and (C) increased density of the soft tissues.

Fig. 5—Radiograph, ventrodorsal view of pelvis, showing dysplasia of the left hip (arrows).

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ness allows the left femur to be displaced laterally and dorsally when the dog is in a standing position. The lateral displacement of the femur is, undoubtedly, the underlying cause of the stifle injury because this joint is out of alignment when each step is taken. The added insult to the stifle over a long period of time is, no doubt, responsible for the uneven and undue wear to the articular surfaces.

Clinicians should be encouraged to study the entire skeleton rather than only the affected part when searching for the cause of a lameness. In arthritis, all the joints of an affected limb and of the opposite limb should be appraised before trying to arrive at a diagnosis. A skeletal change in one area may be responsible for another area becoming injured. An example of a referred injury is the case of the race horse with a lame leg, running at full speed, that fractures the opposite sound leg when he shifts his weight to protect the sore limb.

In chronic degenerative arthritis, treatment is seldom satisfactory. Rest and the injection of cortisone solutions into the involved area gives relief but the hip dysplasia cannot be corrected and, hence, temporary or partial relief is all that can be expected.

This report was submitted by Wayne H. Riser, D.V.M., M.S., Kensington, Md., and John F. Marcus, D.V.M., Lake Forest, Ill.

Our readers are invited to submit histories, radiographs, and diagnoses of interesting cases which are suitable for publication.

Quiz for Quidnuncs

1. Of what practical significance are electron microscopic studies of *Anaplasma marginale* organisms? Page 424.

2. In the next 20 years, what developments can be expected to occur regarding artificial insemination? Page 432.

3. In a local meat inspection program, what is meant by a "4 o'clock inspection"? Page 434.

4. In dogs, how serious are reactions to chicken embryo rabies vaccines? Page 449.

5. What advantage does paracentesis of the vitreous humor have over paracentesis of the aqueous humor in treating glaucoma in the dog? Page 453.

6. How may a branchial cyst in a dog be diagnosed? What corrective surgical technique has been successfully employed? Page 456.

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Ninety-Seventh Annual AVMA Meeting

Denver, Colorado—August 14-18, 1960

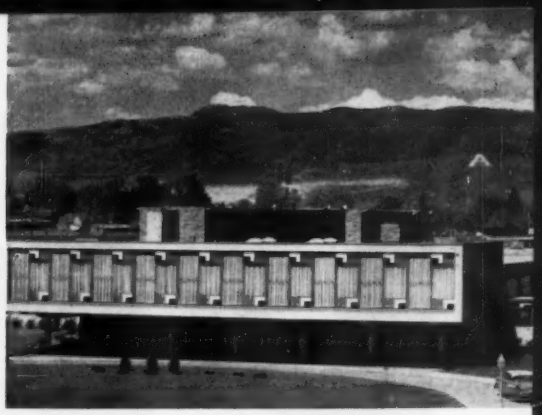
College of Veterinary Medicine at C.S.U. Invites Conventioneers

Colorado State University, located near the foothills of the Rocky Mountains, an hour north of Denver at Fort Collins, will welcome alumni and visitors from the AVMA Convention August 14-18.

The school is Colorado's oldest state educational institution, a rapidly expanding land-grant college with 6,000 students. In addition to the College of Veterinary Medicine, C.S.U. offers complete programs in agriculture, engineering, forestry and range management, home economics, and science and arts.

Dean Rue Jensen of the College of Veterinary Medicine extends the invitation to all AVMA convention visitors. All the departments of the college will be open to them.

Student enrollment in the veterinary college is limited to about 60 students per class. The faculty of the college includes 53 persons in five departments: anatomy, pathology



Aerial view of most of Colorado State University campus and part of city of Fort Collins in background. The main physical plant of the veterinary college is in left-center of picture.

Newsom Hall—One of Colorado State University's modern residence quarters for men, with Rocky Mountains in background.

and bacteriology, medicine, clinics and surgery, and physiology.

Correlates Research with Practice

The staff is actively engaged in research, concentrating primarily on livestock diseases found in the Rocky Mountain area. Findings are reported at the annual short course in February.

Modern facilities are incorporated into the present physical plant which includes departmental buildings, a hospital, an animal reproduction laboratory, and a 65-acre experimental farm.

The George G. Glover Hospital, constructed in 1949, is equipped for both large and small animal work and for radiology. About 5,800 large animals and 6,500 small animals are treated each year at the hospital. A mobile clinic handles about 18,000 patients annually.

The college farm, 3 miles west of the main campus, has facilities for deer, sheep, and cattle; an animal disease isolation laboratory is located there, also. The farm is a research center for many projects, including study of cattle diseases, plant poisoning, vibriosis in sheep, contagious ecthyma, enterotoxemia, placental pathology of sheep, and antler growth of deer.

Expansion Program

A $20-million expansion program for C.S.U. is underway. The $800,000 animal science building and the $1,350,000 plant science building, serving to unify research and laboratory facilities, are the most recent additions to the Ag Mall. This 35-acre site of centralized agriculture facilities includes Agriculture Hall, the National Seed Storage Laboratory, new greenhouses, and the Livestock Pavilion.

A new agronomic research center is being developed on the recently purchased 400-acre irrigated tract of land 4 miles southeast of the campus. Research headquarters for both crops and livestock units will be transferred from the old 152-acre agronomy farm.

Other new buildings on the campus include five modern dormitories and a $2-million engineering building, complete with an atomic reactor.

Bids were recently taken for the $3-million student union to be built south of the engineering building.

STUDENT CHAPTER ACTIVITIES

O.V.C. at Home

On Feb. 23, 1960, the Ontario Student Chapter of the AVMA featured the annual "at home" of the Ontario Veterinary College. The evening started with the banquet at which Dr. K. Berlo from Michigan State University was guest speaker. Bob Curtis was presented with the O.V.C. Student Chapter Trophy which is presented annually to the junior student adjudged to be outstanding in sportsmanship, scholastic ability, extracurricular activities, and personality.

The "at home" followed the banquet and featured displays, in the new building, of the various departments in the College. Some of the highlights of the evening were

(Continued on adv. p. 42)

Bob Curtis (left) receives the O.V.C. Student Chapter Trophy from Dr. J. A. Henderson.

a demonstration of a clinical examination of an animal, a surgery display of an exploratory laporotomy in a dog, a magician show, and the O.V.C. section of College Royal.

The Student Chapter has also had some outstanding speakers at their general meetings which have helped to make them a success. At the October meeting, Dr. T. L. Jones, principal of the Ontario Veterinary College, spoke on the importance of the student chapter and showed some slides; November meeting—Dr. N. Scollard from the Toronto Zoo gave a talk pertaining to his work; January meeting—Dr. G. C. Fisher spoke on the organization of the C.V.M.A. and the veterinarian in practice today; February meeting—Dr. D. C. Blood, head of Division of Medicine at the Ontario Veterinary College, spoke on "The Veterinarian Down Under" discussing Veterinary practice in Australia; March meeting—Dr. J. R. Hay, Chicago, AVMA director of professional relations gave an illustrated talk on "Organized Veterinary Medicine."

s/ELMER JANZEN, *Secretary.*

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APPLICATIONS

Applicants Not Members of Constituent Associations

In accordance with paragraph (c) of Section 1, Article I, of the Bylaws, the names of applicants who are not members of constituent associations shall be published in the JOURNAL. Written comments received by the Executive Secretary from any active member regarding the application as published, will be furnished to the Judicial Council for its consideration prior to acceptance of the application.

MC MONAGLE, WILLIAM D.
Hdq, NYR, MSSA
29th and 3rd Ave.
Brooklyn 32, N. Y.
D.V.M., Washington State College, 1940.
Vouchers: W. E. Jennings and G. H. Zacherle, Jr.

ANTHONY, WALLACE L.
2602 Calhoun St.
Alameda, Calif.
D.V.M., Kansas State University, 1945.
Vouchers: W. E. Jennings and Thomas A. Ward.

de LANNOY, CLARENCE W.
No. 7 Sussex Rd.
Silver Spring, Md.
D.V.M., University of California, 1958.
Vouchers: Lawrence R. Soma and Harold J. Kurtz.

CARTER, LELAND B.
Alameda Administration Center
2155 Webster St.
Alameda, Calif.
D.V.M., B.Sc., Washington State College, 1941.
Vouchers: Thomas A. Ward and Roy A. Resseguie.

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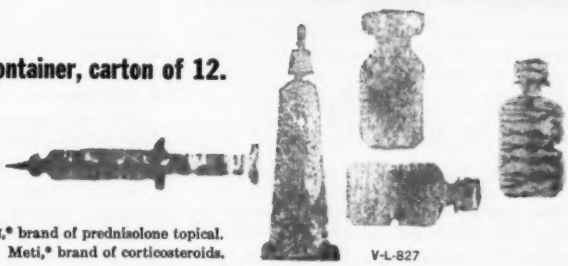

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The idea for radiographic aids for the veterinary practitioner was conceived by two veterinarians: Dr. C. W. Schulz, manager of Veterinary Services, Quaker Oats Co., and Dr. W. C. Banks, professor of veterinary radiology, Texas A. & M. College, College Station, Texas. Currently, the two men are developing a second series which will show pathologic conditions in both animals and a text explaining radiographic technique.

Dr. C. W. Schulz (left), manager, veterinary services, Quaker Oats Co., and Dr. W. C. Banks, professor of veterinary radiology, Texas A. & M. College, developers of "Radiographic Aids for the Veterinary Practitioner."

Instructions to Authors

JOURNAL *of the AVMA*

1) *Exclusive Publication*: Articles submitted for publication in the JOURNAL of the AVMA are accepted with the understanding that they are not being offered for publication elsewhere.

2) *Manuscripts*, including footnotes, references, tables, and legends, must be typewritten, double-spaced, on 8½- by 11-inch bond paper, and the original and one carbon copy should be submitted. One-inch margins should be allowed on the sides with 2-inch margins at the top and bottom. Articles should be concise.

Purpose of the article should be stated in the introduction. Summary should be included.

3) *References* to published works should be brief and limited strictly to what is relevant to satisfactory exposition of the author's own work. Reference names are not permitted in the text of the article. Persons cited are to be referred to by superscript numbers only, relating to the reference list at the end of the article.

References should be typed double-space, in alphabetical order by author, as follows: author(s), title, periodical name, volume, year, and page(s).

[2]Mansson, J., and Obel, N.: The Technique of Adrenalectomy in the Ruminant. Cornell Vet., 48, (1958): 197-201.

When books are cited, name of publisher, location, edition, year of publication, and pages concerned should be given.

[1]Arey, L. B.: Developmental Anatomy. 5th ed. W. B. Saunders Co., Philadelphia, Pa. (1946): 236-240.

4) *Tradenames* of products are avoided in the text of the article. Use only generic or chemical names. The tradename may be included in a footnote along with name and location of producer (composition of product may be included if necessary): e.g., ". . . piperazine citrate* . . ." Footnote: *Piperol, Carson Chemicals, New Castle, Ind.

5) *Arabic numerals* should be used wherever digits are needed throughout the article except at the beginning of a sentence.

6) *Abbreviations* for weights and measures as given in standard dictionaries are usually acceptable, but some are determined by AVMA editorial preferences: e.g., Gm., gr., kg., cc., mg., cmm., Gm./kg., μg., mg./100 ml. Other abbreviations should be explained the first time they are mentioned either in parentheses or footnotes: e.g., ". . . pregnant mare's serum gonadotrophin (PMSG). . ."

7) *Photographs* should be furnished in glossy prints. Identifying arrows, letters, etc. within photographs should be clearly defined. All illustrations should bear the author's name, illustration number, and "top" side indication.

8) *Drawings*, graphs, and charts should be clear and large enough to allow for possible reduction in size. A glossy print should be submitted if possible.

9) *Tables* should be simple and typed double-space. Complex tables are not acceptable. Complex material should be summarized rather than tabulated.

10) *Legends* should be typed double-space on a separate sheet.

Sufficient information should be included to allow the illustration to be understood without reference to the text.

Before submitting a manuscript, authors are urged to consult previous JOURNALS for appropriate style. The AVMA reserves the right to reject any manuscript.

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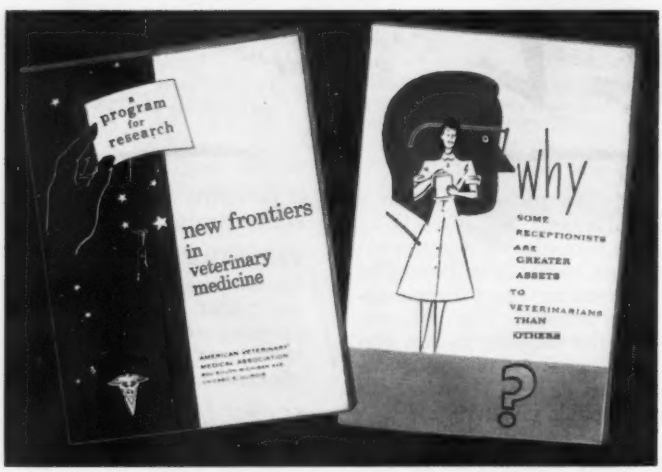
Sections include a rating chart for receptionists, an outline of her responsibilities, suggestions on dress, telephone technique, and a list of questions which she should be prepared to answer.

Copies are available from the AVMA for 50 cents. Many have been sent to the AAHA for sale at its annual meeting in Boston, April 19-22.

"Veterinary Medicine as a Career" has been revised for 1960 and is available at no charge for single copies, and at 10 cents each for 2 or more copies.

"To My Client" booklets are available at $4.00 per 100. A sample copy will be sent at no charge.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?

Pictured above are the two new booklets, "New Frontiers in Veterinary Medicine" and "Why Some Receptionists are Greater Assets to Veterinarians than Others." These are now available from the AVMA office for 50 cents each.

"New Frontiers in Veterinary Medicine" outlines the contributions in research made by veterinarians. It describes the aims of the AVMA and the AVMA Fellowship Program, and includes the names and contributions of the fellows who have completed their research projects.

The second booklet explains "Why Some Receptionists Are Greater Assets to Veter-

The public relations counseling firm of Fleishman-Hillard recently conducted a survey for the Greater St. Louis Veterinary Medical Association. Copies of this survey and public relations program suggestions may be obtained for $1.25 each from Dr. George Murphy, Public Relations Committee Chairman, Greater St. Louis VMA, 133 West Big Bend Rd., Kirkwood 22, Mo.

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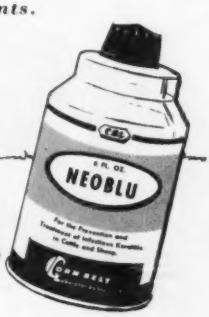

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History of the AVMA

1885

The meetings for 1885 were again held in Boston and at the American Veterinary College. Frank S. Billings presented a discussion and demonstrated lesions of pneumonia and pleuropneumonia, a number of his contentions being contested by Drs. McLean and Liautard. Dr. Liautard added a gold medal to the prize of $50 offered by the Association for the best paper. In so doing he expressed hope that the "usual" report of the Prize Committee, "no paper — no prize — no report," would not be repeated. Among the subjects discussed were: intratracheal and intravenous medication, polyuria, castration, euthanasia, nymphomania, tuberculosis and azoturia.

Charles Burden retired from treasurer of the Association, a position which he had held for 16 years. This record for continuous tenure in an elected office was not surpassed until 1935 when M. Jacob completed his 17th year as treasurer. The new officers were president, Lachlan McLean; vice president, J. B. Cosgrove; secretary, C. B. Michener; and treasurer, J. L. Robertson.

In commenting on the East-West schism, Dr. Liautard said referring to the Cincinnati meeting, "The change in the plan of meeting has no doubt produced amongst veterinarians of the West a more harmonious feeling toward their brother practitioners of the East than before existed, and it is to be hoped that this fraternal sentiment will be strengthened at the coming [New York] meeting. . . . We derive abundant evidence that the division that existed on account of the formation of a new so-called 'National' body is likely to subside." Following the meeting in New York, where "a very harmonious and friendly feeling prevailed," Liautard observes, however, "Whether it was a great success may be a question difficult to answer . . . . this meeting . . . . was just like preceding ones."

At the meeting, several papers offered by the Committee on Diseases, "were, by vote, ordered to be published," and apparently were not read at the meeting. This drew a protest from James D. Hopkins, Territorial Veterinarian for Wyoming who wrote, "I am deeply mortified at the apathy displayed by the Association at the last annual meeting, as well as the lack of interest of veterinarians, in regard to . . . the necessity of wholesome sanitary laws and their enforcement for the protection of domestic animals . . . . You can imagine my surprise to know that the Association adjourned without reference to any question whereby the profession might have benefitted, or the public served through a discussion of the sanitary condition of its domestic animals."

Just what the geographic distribution of the full membership of the USVMA (which was still under the hundred mark) might have been at this time would be difficult to determine. The listing of 41 officers and committee members (duplications excluded) does, however, offer some suggestion. New York with 10 and Massachusetts with 5 still dominated the field. Pennsylvania, Connecticut and Ohio had 3 each; New Jersey and Illinois 2 each; and there was 1 each from Maine, Maryland, Delaware, Washington, D.C., Rhode Island, Alabama, South Carolina, Indiana, Nebraska, Missouri, Minnesota, Wisconsin, and Wyoming Territory.

Of these 41, 25 held the D.V.S. degree, (thus were mostly AVC graduates), and 4 had an M.D. as well; 10 had a V.S. and 2 of these had an M.D.; 6 were British graduates (M.R.C.V.S.), one of whom (C. P. Lyman) was a Fellow of the Royal College. Liautard was a French graduate. No nongraduates appear to have held offices or committee assignments.

The horse and carriage, most popular mode of travel at this time, pictured below with Dr. Lachlan McLean, USVMA president from 1885-1886.

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MAP OF DOWNTOWN DENVER

HOTEL INFORMATION—DENVER, COLORADO, CONVENTION

Ninety-Seventh Annual AVMA Meeting, Aug. 14-18, 1960

All requests for hotel accommodations will be handled by a Housing Bureau in cooperation with the Denver Convention and Visitors Bureau. The Bureau will clear all requests and confirm reservations.

Hotel and Rate Schedule

(See Location, by Number, on Map of Downtown Area)

Map No.	Hotel	Single (1 person)	Double bed (2 persons)	Twin bed (2 persons)	Suites	Sets-2 rooms connecting bath (2-3-4 persons)
1	Adams*	$5.50-7.50	$ 7.50-9.00	$ 8.50-10.50	$13.50-15.00	$ 9.50-16.00 (1 Room, 2dbl. beds)
2	Albany†	6.50-9.50	10.00-12.00	12.50-14.00	30.00	- - - - - - -
3	Ambassador	5.50-6.00	7.00-7.50	9.00	- - - - - - -	- - - - - - -
4	Argonaut*†	6.50-9.50	8.50-11.00	9.50-12.50	- - - - - - -	13.50-17.50
5	Auditorium*	5.00	6.50	7.00	- - - - - - -	8.00-12.00
6	Broadway Plaza†	8.00-10.00	10.00-12.00	12.00-14.50	18.00-28.00	- - - - - - -
7	Brown Palace†	9.00-15.00	13.00-17.00	14.00-19.00	22.00-70.00	18.00-22.00
8	Colorado*	4.50-6.00	6.00-10.00	8.00-12.00	- - - - - - -	14.00-20.00
9	Cory	5.00-7.00	6.00-9.00	6.50-9.00	- - - - - - -	- - - - - - -
10	Cosmopolitan*	8.50-11.00	12.00-18.00	14.00-20.00	22.00-60.00	- - - - - - -
11	Hillview	9.00-11.50	10.00-12.00	12.00-13.50	16.00-18.00	- - - - - - -
12	Hilton*†	HEADQUARTERS HOTEL — Reserved exclusively for official convention use.				
13	Kenmark (not a/c)	4.50-6.50	6.00-7.00	7.50-8.00	- - - - - - -	6.00-12.00
14	Mayflower*	7.50-14.50	8.50-16.50	12.50-18.50	- - - - - - -	- - - - - - -
15	Olin*	5.00-7.00	9.00-11.00	10.00-12.00	- - - - - - -	11.00-16.00
16	Oxford	5.00-10.00	6.50-10.00	8.50-11.00	13.00-16.00	- - - - - - -
17	Sears	5.00-6.00	6.50	7.50	- - - - - - -	14.00 (For 2-3-4 persons)
18	Shirley Savoy*	7.00-9.00	9.50-11.50	11.00-13.00	25.00	15.00-19.00

†100 per cent air-conditioned; in other hotels listed, majority of rooms air-conditioned.

FAMILY PLAN—The above hotels offer a "family plan" whereby children under 12 years of age will be accommodated in the same room with their parents at no extra charge. If more than one room is required to accommodate children, the hotel will charge only the single rate for each room.

MOTELS—Reservations for motels in the Denver area may be made through the Denver Convention and Visitors Bureau, 225 West Colfax, Denver 2, Colo.

PLEASE USE APPLICATION ON REVERSE SIDE FOR HOTEL ACCOMMODATIONS

Application for Hotel Accommodations

1960 AVMA Convention — Denver, Colorado

The Convention and Visitors Bureau will make every effort to place you according to your expressed wishes or, if the accommodations of your choice are not available, the Housing Bureau will select one that is nearest to the preferred rate and location.

Please give us the complete information requested below. At least four choices of hotels, or more if you desire, are necessary. Arrange for double occupancy of rooms wherever possible; only a limited number of single rooms is available.

Date .....

Hotel ..... First Choice

Hotel ..... Second Choice

Hotel ..... Third Choice

Hotel ..... Fourth Choice

☐ Room with bath for one person. Rate per room desired $..... to $.....

☐ Room with bath for ..... persons. Rate per room desired $..... to $.....

☐ double bed ☐ twin beds

☐ Two rooms with connecting bath for ..... persons:

Rate per set desired $..... to $.....

☐ Suite with ..... bedroom(s) with bath for ..... persons:

Rate per suite desired $..... to $.....

☐ Check here if you desire accommodations on the FAMILY PLAN.

Arrival date ....., hour ..... A.M. .....P.M.

Departure date .....

If reservations cannot be made in one of the hotels indicated shall we place you elsewhere? ☐ Yes ☐ No

If you have a few days before or after the convention that you would like to enjoy in the mountains please check the appropriate box to receive free information:

☐ Sightseeing trip ☐ Dude Ranches ☐ Resorts ☐ Housekeeping cabins

Rooms will be occupied by (NAMES OF ALL PARTIES MUST BE LISTED)

PLEASE PRINT

NAME	STREET ADDRESS	CITY	STATE

Name .....

Street Address .....

City ..... State .....

MAIL TO: Convention and Visitors Bureau, 225 West Colfax Avenue, Denver 2, Colorado

Reservations will be confirmed directly to those who return this form and it should be received not later than July 25, 1960

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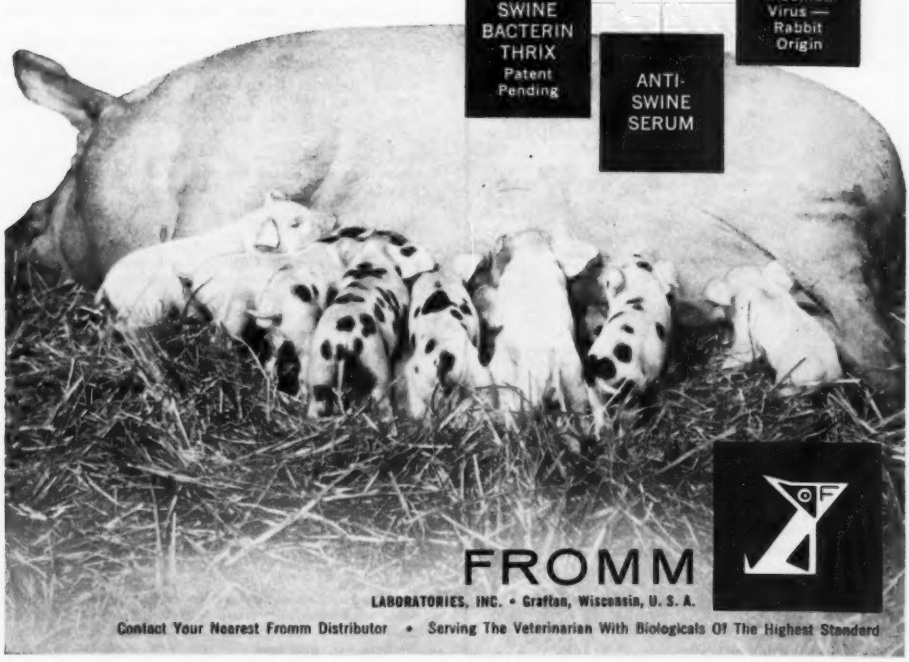
3 HOG VACCINE Modified Virus — Rabbit Origin



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COMING MEETINGS

Notices of coming meetings must be received 30 days before date of publication.

Pennsylvania, University of. Annual conference for veterinarians. School of Veterinary Medicine, University of Pennsylvania, Philadelphia, May 3-4, 1960. W. H. Rhodes, program chairman.

Eastern Iowa Veterinary Association, Inc. Annual all-day practitioner's clinic. Hawkeye Downs, Cedar Rapids, May 10, 1960, beginning at 9:00 a.m. Henry V. Lewis, 2920 Harrison St., Davenport, Iowa, general clinic chairman.

Kansas State University. Twenty-second annual conference. School of Veterinary Medicine, Kansas State University, Manhattan, May 19-21, 1960. Donald C. Kelley, chairman.

Purdue University. International symposium on growth: molecule, cell, and organism. Purdue University, Lafayette, Ind., June 16-18, 1960. For additional information, write: Dr. M. X. Zarrow, Department of Biological Sciences, Life Science Building, Purdue University, Lafayette, Ind.

Georgia Veterinary Medical Association. Fifty-fourth annual meeting. Jekyll Island, Ga., June 19-21, 1960. A. M. Mills, 325 Pinecrest Dr., Athens, Ga., secretary.

Mississippi State Veterinary Medical Association, Inc. Annual meeting, King Edward Hotel, Jackson, June 19, 1960. Joseph W. Branson, P. O. Box 4223, Fondren Sta., Jackson, Miss., secretary-treasurer.

North Carolina Veterinary Medical Association. Fifty-ninth annual summer meeting. Grove Park Inn, Asheville, June 21-23, 1960. J. T. Dixon, 3026 South Main St., Winston-Salem, N.C., secretary-treasurer.

California Veterinary Medical Association, Seventy-second annual meeting. Jack Tar Hotel, San Francisco, Calif., June 26-29, 1960. Mr. Ken Humphreys, 3004 16th St., San Francisco 3, Calif., executive secretary.

Iowa State University. Annual conference for veterinarians. Memorial Union, Iowa State University, Ames, July 12-13, 1960. Address the program committee at Iowa State for additional information.

Virginia Veterinary Medical Association. Summer meeting. Shoreham Hotel, Washington, D.C., July 17-19, 1960. G. B. Estes, State Office Building, Richmond, Va., secretary-treasurer.

Kentucky Veterinary Medical Association. Forty-ninth annual convention. Sheraton-Seelbach Hotel, Louisville, July 18-19, 1960. L. S. Shirrell, 545 East Main, Frankfort, Ky., secretary.

Auburn University. Fifty-third annual conference for veterinarians. School of Veterinary Medicine, Auburn University, July 24-27, 1960. J. E. Greene, dean.

Canadian Veterinary Medical Association. Twelfth annual meeting. Halifax, Nova Scotia, July 24-27, 1960. For reservations, write: Dr. M. D. Harlow, Box 1153, Halifax, Nova Scotia, Can.

Louisiana Veterinary Medical Association, Inc. Annual meeting. Monteleone Hotel, New Orleans, Aug. 1-2, 1960. Robert K. Morris, 406 W. McNeese St., Lake Charles, La., secretary.

American Veterinary Medical Association. Ninety-seventh annual meeting. Denver-Hilton Hotel, Denver, Colo., Aug. 15-18, 1960. H. E. Kingman, Jr., 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

Armed Forces Institute of Pathology. Seventh annual course. Armed Forces Institute of Pathology, Washington, D.C., Sept. 26-30, 1960. Deadline for applications is August 15. To apply, write: The Director, Armed Forces Institute of Pathology. Washington 25, D.C.

Gaines Dog Research Center. Tenth annual symposium. Kankakee Civic Auditorium, Kankakee, Ill., Oct. 12, 1960. Dean C. A. Brandly, School of Veterinary Medicine, University of Illinois, Urbana, Ill., chairman.

Southern Veterinary Medical Association, Inc. Annual meeting. Francis Marion Hotel, Charleston, S.C., Oct. 23-26, 1960. Otto M. Strock, 461 Maybank Highway, Charleston, S.C., general chairman.

Animal Care Panel. Annual convention. Sheraton-Jefferson Hotel, St. Louis, Mo., Oct. 26-28, 1960. Herbert Graff, 835 S. 8th St., St. Louis, Mo., convention secretary.

Foreign Meetings

International Association of Veterinary Food Hygienists. Second Symposium. Basel, Switzerland, May 15-21, 1960. Dr. A. Clarenburg, 1, Sterrenbos, Utrecht, The Netherlands, president.

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International Congress of Physio-Pathology of Animal Reproduction and Artificial Insemination, Amsterdam, Netherlands, June 13-17, 1960. Dr. J. Edwards, Milk Marketing Board, Thames, Surrey, England.

First International Congress of Endocrinology. Technical University of Denmark, Copenhagen, July 18-23, 1960. Dr. Christian Hamburger, Statens Seruminstitut, Copenhagen S, Denmark, chairman of the executive committee.

Second International Course on Lyophilization. Lyon, France, Aug. 29—Sept. 9, 1960. For full details, contact: Dr. Louis R. Rey, Directeur des Cours Internationaux de Lyophilisation, Laboratoire de Physiologie, Ecole Normale Superieure 24, rue Lhomond, Paris 5, France.

Fourth International Congress on Animal Reproduction. The Hague, Netherlands, June 5-9, 1961. For additional information contact: the Secretariat of the Fourth International Congress on Animal Reproduction, 14, Burgemeester de Monchyplein, The Hague, Netherlands, Dr. L. Hoedemaker, secretary to the organizing committee.

Eighth International Congress of Animal Husbandry. Hamburg, Germany, June 13, 1961.

Regularly Scheduled Meetings

ALABAMA—Central Alabama Veterinary Medical Association, the first Thursday of each month. James L. Chambers, 4307 Normanbridge Rd., Montgomery, Ala., secretary-treasurer.

Jefferson County Veterinary Medical Association, the second Thursday of each month. Dan P. Griswold, Jr., 714 S. 39th St., Birmingham, secretary.

Mobile-Baldwin Veterinary Medical Association, the third Tuesday of each month. Cecil S. Yarbrough, 4121 U.S. 90 West, Mobile, Ala., secretary.

North Alabama Veterinary Medical Association, the second Thursday of November, January, March, May, July, and September, in Decatur, Ala. Ray A. Ashwander, P.O. Box 1767, Decatur, Ala., secretary.

Northeast Alabama Veterinary Medical Association, the second Tuesday of every other month. Leonard J. Hill, P.O. Box 761, Gadsden, Ala., secretary-treasurer.

ALASKA—Anchorage Group of the Alaska V. M. A., the last Wednesday of each month at Fort Richardson Officers' Club or Thompson's Restaurant, 6th and I Streets, Anchorage, Alaska. Lt. Colonel E. H. Akins, Surgeon's Office, USARAL, Fort Richardson, Alaska, secretary to the Alaska V. M. A.

ARIZONA—Central Arizona Veterinary Medical Association, the second Tuesday of each month. John D. Clark, 518 West Oak St., Scottsdale, Ariz., secretary.

Southern Arizona Veterinary Medical Association, the third Wednesday of each month at 7:30 p.m. Gwyn Chapin, 2215 E. Calle Vista, Tucson, Ariz., secretary.

ARKANSAS—Pulaski County Veterinary Medical Society, the second Tuesday of each month. Harvie R. Ellis, 54 Belmont Drive, Little Rock, Ark., secretary-treasurer.

CALIFORNIA—Alameda-Contra Costa Veterinary Medical Association, the fourth Wednesday of every month. L. M. Proctor, 24 Meadow Lane, Concord, Calif., secretary.

Bay Counties Veterinary Medical Association, the second Tuesday of February, April, July, September, and December. Herb Warren, 3004 16th St., San Francisco, Calif., executive secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month. Dr. Marilyn Lewis, 2145 E. Pico, Fresno 26, Calif., secretary.

Humboldt-Del Norte Counties Veterinary Medical Association, the second Tuesday of January, May, September, and November. Dr. M. Lunstra, P. O. Box 734, Eureka, Calif., secretary-treasurer.

Kern County Veterinary Medical Association, the first Thursday evening of the month. Francis Dawson, 2007 Nile St., Bakersfield, Calif., secretary-treasurer.

Mid-Coast Veterinary Medical Association, the first Thursday of each month. William P. Matulich, P. O. Box 121, San Luis Obispo, Calif., secretary-treasurer.

Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. V. Todorovic, 47 Mann Ave., Watsonville, Calif., secretary.

Northern California Association of Veterinarians, the second Tuesday of the month. George Crenshaw, 1137 8th St., Orland, Calif., secretary.

North San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month at the Hotel Covell in Modesto, Calif. Kenneth E. Erwin, Box 841, Manteca, Calif., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month. K. R. Wilcox, P.O. Box 98, Upland, California, secretary-treasurer.

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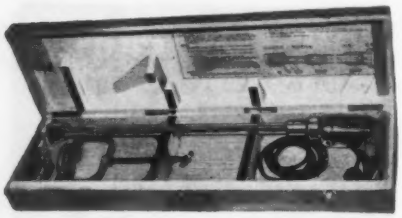
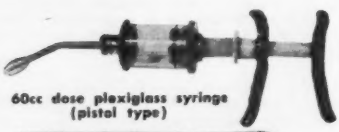


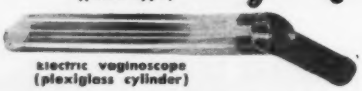
Electric dental float

Gastrotomy instruments

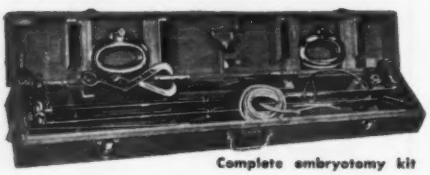
Hock restraint device



60cc dose plexiglass syringe (pistol type)



Electric vaginoscope (plexiglass cylinder)



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Orange County Veterinary Medical Association, the third Thursday of each month. H. M. Stanton, 1122, S.E. U.S. Highway 101, Tustin, Calif., secretary.

Peninsula Veterinary Medical Association, the third Tuesday of the month, Arthur L. Gilger, 2905 South El Camino Real, San Mateo, Calif., secretary-treasurer.

Redwood Empire Veterinary Medical Association, the third Thursday of the month. R. R. Rediske, 833 Vallejo Ave., Novato, Calif., secretary-treasurer.

Sacramento Valley Veterinary Medical Association, the second Thursday of each month with the location specified monthly. Eugene C. Story, 4819 "V" St., Sacramento 17, Calif., secretary.

San Diego County Veterinary Medical Association, the fourth Tuesday of the month. Robert F. Burns, 7572 North Ave., Lemon Grove, Calif., secretary-treasurer.

San Fernando Valley Chapter SCVMA, the second Tuesday of each month at 7:30 p.m., Hody's Restaurant, North Hollywood, Calif. Jack Darling, 8615 Lindley, Northridge, Calif., secretary-treasurer.

San Francisco Veterinarians, every other month—meetings decided at previous sessions. J. Wachs, 317D Sacramento St., San Francisco, Calif., secretary-treasurer.

Santa Barbara-Ventura Counties Veterinary Medical Association, every three months, no set date. Gerald M. Clark, 5415 8th St., Carpinteria, Calif., secretary-treasurer.

Santa Clara Valley Veterinary Medical Association, the last Tuesday of the month. Robert L. King, 1269 Grant St., Santa Clara, Calif., secretary-treasurer.

Southern California Veterinary Medical Association, the third Wednesday of the month. Mr. Don Mahan, 1919 Wilshire Blvd., Los Angeles 57, Calif., executive secretary.

Tulare County Veterinary Medical Association, the second Thursday of each month at the Tagus Ranch, Tulare. Larry A. Jackson, 12191 Lacey Blvd., Hanford, Calif., secretary-treasurer.

COLORADO—Denver Area Veterinary Medical Society, the fourth Tuesday of every month. Charles H. Garvin, 12024 E. 14th Ave., Aurora 8, Colo., secretary-treasurer.

Northern Colorado Veterinary Medical Society, the first Wednesday of each month, in Fort Collins. E. J. Carroll, Dept. of Clinics and Surgery, Colorado State University, Fort Collins, Colo., secretary.

DELAWARE—New Castle County Veterinary Medical Association, the first Tuesday of each month at 9:00 p.m. in the Hotel Rodney, Wilmington, Del. A. P. Mayer, Jr., R.F.D. 2, Newark, Del., secretary-treasurer.

DISTRICT OF COLUMBIA—District of Columbia Veterinary Medical Association, the second Tuesday evenings of January, March, May, and October. R. B. Gochenour, 10109 Ashwood Dr., Kensington, Md., secretary-treasurer.

FLORIDA—Big Bend Veterinary Medical Association, meets the first Sunday of each month at 5:00 p.m. at the Tallahassee Dining Room, Tallahassee. Mrs. Robert E. Lee, P.O. Box 3236, Tallahassee, Fla., acting secretary.

Central Florida Veterinary Medical Association, the first Friday of each month at 8:00 p.m.; place specified monthly. William L. Sippel, P.O. Box 847, Kissimmee, Fla., secretary.

Florida West Coast Veterinary Medical Association, the second Wednesday of each month at the Lighthouse Inn, St. Petersburg. S. H. Carr, P.O. Box 1206, Dunedin, Fla., secretary.

Hillsborough Veterinary Medical Society, the second Monday of every month; time and place are specified

monthly. J. H. Rogers, 311 N. Ben Avon Dr., Tampa, Fla., secretary-treasurer.

Jacksonville Veterinary Medical Association, the first Thursday of every month at the Green Turtle Restaurant, at 8:00 p. m. Edwin G. Clampett, 5150 Love Grove Rd., Jacksonville 7, Fla., secretary.

Northwest Florida Veterinary Medical Society, third Wednesday of each month; time and place specified monthly; David B. Aronson, 923 Belair Road, Pensacola, Fla., secretary.

Palm Beach Veterinary Society, the last Thursday evening of each month. McArthur Dairy Building, Four Points, W. Palm Beach. D. L. Lichty, 700 Hollywood Place, West Palm Beach, Fla., secretary.

Pinellas County Veterinary Society, the first Monday of January, February, April, May, July, August, October, and November at the Fort Harrison Hotel, Clearwater, Fla., at 7:30 p.m. L. H. Sellers, Jr., 3813 Tyrone Blvd., St. Petersburg, Fla., secretary.

Ridge Veterinary Medical Association, the fourth Thursday of each month in Bartow, Fla. John S. Haromy, Route 1, Box 107-A, Lake Wales, Fla., secretary.

South Florida Veterinary Society, the third Wednesday of each month; time and place specified monthly. E. J. Gissendanner, 1665 N.E. 123rd St., North Miami, Fla., secretary.

Suwannee Valley Veterinary Medical Association, meets each fourth month; time and place specified quarterly. G. L. Burch, P.O. Box 405, Ocala, Fla., secretary.

Volusia County Veterinary Medical Association, the fourth Thursday of each month. Robert E. Cope, 127 E. Mason, Daytona Beach, Fla., secretary.

GEORGIA—Atlanta Veterinary Medical Society, the third Thursday of each month at the Elk's Home, 726 Peachtree St., Atlanta. Richard Montgomery, P.O. Box 222, Morrow, Ga., secretary-treasurer.

East Georgia Veterinary Medical Association, quarterly, date and meeting place varies. Hugh F. Arundel, P.O. Box 153, Statesboro, Ga., secretary.

Georgia-Carolina Veterinary Medical Association, the second Monday of each month at 8:00 p.m., at the Town Tavern, Augusta, Ga. James M. Hawk, 700 E. Buena Vista Ave., North Augusta, S. C., secretary.

North Georgia Veterinary Medical Association, quarterly, no set date, the spring meeting at the Veterinary School, Athens, Ga. S. J. Shirley, Commerce, Ga., secretary.

South Georgia Veterinary Medical Association, the second Sunday of each quarter at 3:30 p.m., at the Radium Springs Hotel, Albany, Ga. M. W. Hale, Route 2, Tifton, Ga., secretary.

HAWAII—Honolulu Veterinary Society, the third Tuesday evening of January, March, May, July, September, and November. Howard H. Furomoto, 1135 Kapahulu Ave., Honolulu, Hawaii, secretary-treasurer.

ILLINOIS—Central Illinois Veterinary Medical Association, June 9, Sept. 9, and Dec. 10, 1959. Howard Bennett, 120 W. Jefferson St., Petersburg, Ill., secretary-treasurer.

Chicago Veterinary Medical Association, the second Tuesday of each month, Charles H. Armstrong, 1021 Davis St., Evanston, secretary.

INDIANA—Calumet Area Veterinary Medical Association, the first Thursday of each month. Bruce Sharp, Box 166, Hobart, Ind., secretary-treasurer.

Central Indiana Veterinary Medical Association, the second Wednesday of each month. L. Bruce Horrall, Mooresville, Ind., secretary.

Michiana Veterinary Medical Association, the second Thursday of every month except July and December, at the Hotel LaSalle, South Bend, Ind. Stanton Williamson, 217 W. Chippewa St., South Bend, Ind., secretary.

Northeastern Indiana Veterinary Medical Association, the second Tuesday of each month, except July, August, and January; time and place specified monthly. Paul W. Hough, 1121 W. California Rd., Fort Wayne, Ind., secretary.

Northwestern Indiana Veterinary Medical Association, the fourth Thursday of each month, except August, January, and February. Harvey R. Smith, R.R. 2, Box 30, Lowell, Ind., secretary-treasurer.

Tenth District Veterinary Medical Association, the third Thursday of each month. J. S. Baker, P.O. Box 52, Pendleton, Ind., secretary.

IOWA—Cedar Valley Veterinary Medical Association, the second Monday of each month, except January, July, August, and October in Black's Tea Room, Waterloo, Iowa. E. L. Koch, Plainfield, Iowa, secretary.

Central Iowa Veterinary Medical Association, the third Monday of each month, except June, July, and August at 6:30 p.m., Breeze House, Ankeny, Iowa. S. L. Hendricks, secretary-treasurer.

Coon Valley Veterinary Medical Association, the second Wednesday of each month, September through May, at Bradford Hotel, Storm Lake, at 7:30 p.m. V. R. Howie, Manson, Iowa, secretary.

East Central Iowa Veterinary Medical Association, the third Thursday of each month at 6:30 p.m., usually at the Hotel Roosevelt in Cedar Rapids, Iowa. T. F. Bartley, P.O. Box 454, Cedar Rapids, secretary.

Fayette County Veterinary Medical Association, the third Thursday of each month at 6:30 p.m. in West Union, Iowa. M. F. Frevert, West Union, secretary.

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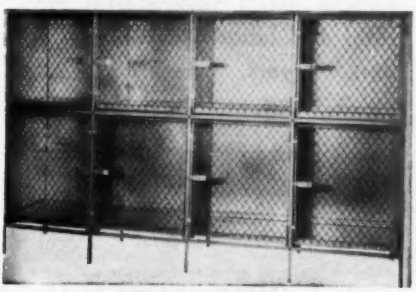

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North Central Iowa Veterinary Medical Association, the third Thursday of April, at the Warden Hotel, Fort Dodge, Iowa. H. Engelbrecht, P. O. Box 797, Fort Dodge, secretary.

Northeast Iowa-Southern Minnesota Veterinary Association, the first Tuesday of February, May, August, and November at the Wisneslick Hotel, Decorah, Iowa, 6:30 p.m. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Northwest Iowa Veterinary Medical Association, the second Tuesday of February, May, September, and December, at the Community Building, Sheldon. Warren Verploeg, Paulina, Iowa, secretary.

Southeastern Iowa Veterinary Association, the first Tuesday of each month at Mt. Pleasant. H. D. McCreedy, Ottumwa, Iowa, secretary.

Southwestern Iowa Veterinary Medical Association, the first Tuesday of April and October, Hotel Chieftain, Council Bluffs. F. S. Sharp, Red Oak, Iowa, secretary.

Upper Iowa Veterinary Medical Association, the third Tuesday of each month at All Vets Center, Clear Lake, at 7:00 p.m. Delmar Diercks, Rockwell, secretary.

KENTUCKY—Central Kentucky Veterinary Medical Association, the first Wednesday of each month. R. H. Folsom, P.O. Box 323, Danville, Ky., secretary.

Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday of each month in Louisville or within a radius of 50 miles, except January, May, and July. G. R. Comfort, 2102 Reynolds Lane, Louisville, Ky., secretary-treasurer.

LOUISIANA—New Orleans Veterinary Medical Association, the fourth Thursday of every month at the Monteleone Hotel, New Orleans, at 8:30 p. m. Roy D. Hock, 938 Esplanade Ave., New Orleans 16, La., secretary-treasurer.

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MARYLAND—Baltimore City Veterinary Medical Association, the second Thursday of each month, September through May (except December), at 9:00 p.m., at the Park Plaza Hotel, Charles and Madison St., Baltimore Md. Leonard D. Krinsky, 6111 Hartford Rd., Baltimore, Md., secretary.

MICHIGAN—Central Michigan Veterinary Medical Association, the first Wednesday of every month at 7 p.m. Jerry Fries, 2070 E. Main St., Owosso, Mich., secretary.

Mid-State Veterinary Medical Association, the fourth Thursday of each month with the exception of November and December. Robert W. Acton, 4110 Spring Rd., Jackson, Mich.

Saginaw Valley Veterinary Medical Association, the last Wednesday of each month. Alvin R. Conquest, P.O. Box 514, Grand Blanc, Mich., secretary.

Southeastern Michigan Veterinary Medical Association, the fourth Wednesday of every month, September through May. Louis J. Rossoni, 24531 Princeton Ave., Dearborn 8, Mich., secretary.

MINNESOTA—Lake Region Veterinary Medical Association, quarterly meetings, with time and place specified prior to each meeting. J. A. Strache, Battle Lake, Minn., secretary-treasurer.

MISSOURI—Greater St. Louis Veterinary Medical Association, the first Friday of each month (except July and August), at the Coronado Hotel, Lindell Blvd. and Spring Ave., St. Louis Mo., at 8 p.m. Edwin E. Epstein, 4877 Natural Bridge Ave., St. Louis 15, Mo., secretary.

Kansas City Veterinary Medical Association and Kansas City Small Animal Hospital Association, the third Thursday of each month at the Hotel President, Kansas City, Mo. Iain M. Paton, 12203 W. 70th Ter., Kansas City, Mo., secretary.

NEVADA—Western Nevada Veterinary Society, the first Tuesday of each month. Paul S. Silva, 1170 Airport Road, Reno, Nev., secretary.

NEW JERSEY—Central New Jersey Veterinary Medical Association, the second Thursday of November, January, March, and May at Old Hights Inn, Hightstown, N. J. David C. Tudor, R.D. 1, Box 284A, Cranbury, N. J., secretary.

Metropolitan New Jersey Veterinary Medical Association, the third Wednesday evening of each month from October through April, except December, at the Irvington House, 925 Springfield Ave., Irvington, N.J. Bernard M. Weiner, 787 Clinton Ave., Newark, N.J., secretary.

Northern New Jersey Veterinary Association, the fourth Tuesday of each month at the Elks Club, Hackensack. James R. Tanzola, Upper Saddle River, N.J., secretary.

Northwest Jersey Veterinary Society, the third Wednesday of every odd month. L. S. Nilsson, Jr., 224 Hardwick St., Belvidere, N. J., secretary-treasurer.

Southern New Jersey Veterinary Medical Association, the fourth Tuesday of each month at the Collmont Diner, Collingswood, N.J. Jay Simmons, 247 South White Horse Pike, Audubon, N. J., secretary.

NEW MEXICO—Bernalillo County Veterinary Practitioners Association, the third Wednesday of each month, Fez Club Albuquerque. Donald W. Fitzgerald, 1825 Lomas Blvd., N.E., Albuquerque, N.M., secretary-treasurer.

NEW YORK—New York City, Inc., Veterinary Medical Association of, the first Wednesday of each month at 8:00 p. m., October to June inclusive, at the New York University Medical Center, Alumni Auditorium, 550 First Ave. (between 30th and 31st St.) New York City, N.Y. C. E. DeCamp, 24 Warwick Ave., Scarsdale, N.Y., secretary.

Monroe County Veterinary Medical Association, the first Thursday of even-numbered months except August. Irwin Bircher, 40 Meredith St., Rochester 9, N. Y., secretary-treasurer.

NORTH CAROLINA—Central Carolina Veterinary Medical Association, the second Wednesday of each month at 7:00 p.m. in the O'Henry Hotel, Greensboro. W. A. Sumner, 3741 High Point Rd., Greensboro, N.C. secretary.

Eastern North Carolina Veterinary Medical Association, the last Tuesday evening of each month, time and place specified monthly. Byron H. Brow, Box 453, Goldsboro, N. Car., secretary-treasurer.

Piedmont Veterinary Medical Association, the last Friday of each month. J. G. Martin, Boone, N. Car., secretary.

Twin Carolinas Veterinary Medical Association, the third Friday of each month at Orange Bowl Restaurant, Rockingham, N. Car., at 7:30 p.m. J. E. Currie, 690 N. Leak St., Southern Pines, N. Car., secretary.

Western North Carolina Veterinary Medical Association, the third Thursday of every month at 7:00 p.m. in the George Vanderbilt Hotel, Asheville, N. Car. H. A. Justus, 924 Lakeside Dr., Hendersonville, N. Car., secretary.

OHIO—Cincinnati Veterinary Medical Association, the third Tuesday of every month at Shuller's Wigwam, 6210 Hamilton Ave., at North Bend Rd., Ronald A. Meeks, 11081 Springfield Pike, Cincinnati 15, Ohio, secretary.

Clark County Veterinary Medical Association, meetings held quarterly; time and place irregular. R. Edmondson, South Charleston, Ohio, secretary-treasurer.

Columbus Academy of Veterinary Medicine, the third Thursday of every month, September through May; place irregular. Earl Simondson, 3120 Valley View, Columbus, Ohio, secretary.

Cuyahoga County Veterinary Medical Association, the first Wednesday in September, October, December, February, March, April, and May, at 9:00 p.m., at the Carter Hotel, Cleveland, Ohio. R. W. Stockstill, 6545 Mayfield Rd., Cleveland, Ohio, secretary.

Dayton Veterinary Medical Association, the first Tuesday of every month, Pappy's Kitchen Klub, 5102 W. Main St. Dr. William Pumpelly, 6801 Airway Rd., Dayton, Ohio, secretary-treasurer.

Fifth District Veterinary Medical Association, meetings held quarterly; time and place irregular. E. J. Kersting, 115 Sheffield Rd., Columbus, Ohio, secretary.

Geauga County Veterinary Medical Society, the third Wednesday of each month, at the Manor House, Newberry, Ohio, at 1:00 p.m. Peter J. Clemens, Jr., R. D. 2, Chagrin Falls, Ohio, secretary.

Kilbuck Valley Veterinary Medical Association, the first Wednesday of alternate months beginning with February; place irregular. Charles Gale, Ohio Agricultural Experiment Station, Wooster, Ohio, secretary-treasurer.

Knox County Veterinary Medical Association, meetings irregular. F. O. Haberman, Centerburg, Ohio, president.

Lorain County Veterinary Medical Association, the second Wednesday of April, June, October, December, and February; place irregular. G. W. Bunyan, 37200 Detroit Rd., Avon, Ohio, secretary-treasurer.

Madison County Veterinary Medical Association, quarterly; date and place irregular. James Herman, Mechanicsburg, Ohio, secretary-treasurer.

Mahoning County Veterinary Medical Association, the fourth Tuesday of each month at 9:00 p.m., at the Maennerchor Club, Youngstown. Sam Segall, 2935 Glenwood Ave., Youngstown, Ohio, secretary-treasurer.

Miami Valley Veterinary Medical Association, the first Wednesday of December, March, June, and September; place irregular. L. J. Grilliot, Route 1, Troy, Ohio, secretary-treasurer.

North Central Ohio Veterinary Medical Association, the last Wednesday of each month, except during the summer months; place irregular. Ben Henson, 268 S. Main St., Mansfield, Ohio, secretary-treasurer.

Northeastern Ohio Veterinary Medical Association, meetings and place irregular. James Bridenstine, East Orwell, Ohio, secretary.

Northwestern Ohio Veterinary Medical Association, the last Wednesday of March and July; place irregular. F. C. Hartman, 3904 Rushland Ave., Toledo, Ohio, secretary-treasurer.

Richland County Veterinary Medical Association, meetings quarterly, time and place irregular. Ben Henson, 268 S. Main St., Mansfield, Ohio, secretary-treasurer.

Ross County Veterinary Medical Association, meetings and place irregular. W. A. Hirsch, Chillicothe, secretary-treasurer.

South Central Ohio Veterinary Medical Association, the third Thursday of each month at the Jo-Kar Restaurant, Lancaster. James Hagely, Lancaster, Ohio, secretary.

Southeastern Ohio Academy of Veterinary Medicine, every other month; time and place irregular. M. S. Phillips, Athens, Ohio, secretary.

Southern Ohio Veterinary Medical Association, meetings held quarterly at Wilmington; time irregular, S. E. Peterson, 1093 Rombach Ave., Wilmington, Ohio, secretary-treasurer.

Stark County Veterinary Medical Association, the second Tuesday of every month, at Holiday Inn, W. Tuscarawas St., Canton, Robert Leed, 5500 Cleveland Ave., N.W., North Canton, Ohio, secretary-treasurer.

Summit County Veterinary Medical Association, the last Tuesday of every month (except June, July, and August), at the Mayflower Hotel, Akron, Ohio. M. L. Scott, 42 W. Market St., Akron, Ohio, secretary-treasurer.

Toledo Veterinary Medical Association, every other month; date and place irregular. F. C. Hartman, 3904 Rushland Ave., Toledo, Ohio, corresponding secretary.

Tri-County Veterinary Medical Association, the fourth Wednesday of January, May, and September; place irregular. Mrs. Fred Guenther, Springboro, Ohio, secretary-treasurer.

Trumbull County Veterinary Medical Association, meet three or four times a year; time and place irregular. R. A. Hanawalt, P.O. Box 117, Kinsman, Ohio, secretary-treasurer.

West Central Veterinary Medical Association, third Thursday of February, June, September, and November, at the Lima Club, Lima. K. R. Heidt, 1055 Spencerville Rd., Lima, Ohio, secretary-treasurer.

Wheeling Valley Veterinary Medical Association, meetings held quarterly; time and place irregular. Earl Weaver, 1406 S. Zane Rd., Martins Ferry, Ohio, vice-president.

OKLAHOMA—Oklahoma County Veterinary Medical Association, the second Wednesday of every month, 7:30 p.m., Patrick's Foods Cafe, 1016 N.W. 23rd St., Oklahoma City. Claude A. Tigert, 3032 N.W. 68th St., Oklahoma City, Okla., secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month at the City-County Health Building, 4616 E. 15th St., Tulsa, Okla. Arlen D. Hill, 5302 E. 11th St., Tulsa, Okla., secretary.

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Tulsa Association of Small Animal Veterinarians, the first and third Mondays of each month, at the City County Health Building. Dr. Glen A. Harbert, 2242 East 56th Place, Tulsa, Okla., secretary-treasurer.

OREGON—Portland Veterinary Medical Association, the second Tuesday of each month, at 7:30 p.m. Ireland's Restaurant, Lloyds, 718 N.E. 12th Ave., Portland. Donald L. Moyer, 8415 S.E. McLoughlin Blvd., Portland 2, Ore., secretary.

Willamette Veterinary Medical Association, the third Tuesday of each month, except July and August, at the Marion Hotel, Salem. Robert J. Mallorie, P.O. Box 155, Silverton, Ore., secretary.

PENNSYLVANIA—Conestoga Veterinary Medical Association, the third Friday of each month at 8:30 p. m., in the Exchange Room of Union Stock Yards, Lancaster. Israel M. Saturen, R. D. 2, Willow St., Lancaster, Pa., secretary.

Keystone Veterinary Medical Association, the fourth Wednesday of each month at the University of Pennsylvania School of Veterinary Medicine, Philadelphia. Raymond C. Snyder, N.E. Corner 47th St. and Hazel Ave., Philadelphia 43, Pa., secretary.

Lehigh Valley Veterinary Medical Association, the first Thursday of each month. Stewart Rockwell, 10th and Chestnut Sts., Emmaus, Pa., secretary.

Pennsylvania Northern Tier Veterinary Medical Association, the third Wednesday of each odd numbered month. R. L. Michel, Troy, Pa., secretary.

SOUTH CAROLINA—Piedmont Veterinary Medical Association, the third Wednesday of each month at the Fairforest Hotel, Union, S. Car. John W. Dantzler, 272 Wiles St., Orangeburg, S. C., secretary.

TEXAS—Coastal Bend Veterinary Medical Association, the third Wednesday of each month, at 8:00 p.m.; place varies. Carl A. Keller, 6103 Highway 9, Corpus Christi, Texas, secretary-treasurer.

Plan to attend the 1960 AVMA CONVENTION in Denver, Colorado, August 14-18. Hotel information and application blanks on adv. p. 50-52 of this issue.

Dallas County Veterinary Medical Association, the first Tuesday of each month at 7:30 p.m., at a place to be specified. Frank N. Black, 12830 Preston Rd., Dallas, Texas, corresponding secretary.

UTAH—Salt Lake Small Animal Hospital Association, the first Monday of every month, at the Holiday Inn, 3040 South State St., Salt Lake City, at 12:15 p.m. Douglas H. McKelvie, 1220 S. State St., Salt Lake City, Utah, secretary-treasurer.

VIRGINIA—Central Virginia Veterinary Association, the second Thursday of each month at 8:00 p.m., except July and August, at a place in Richmond to be announced monthly. Edwin M. Crawford, secretary-treasurer.

Northern Virginia Veterinary Conference Association, the second Tuesday of each month. T. P. Koudelka, P.O. Box 694, Harrisonburg, Va., secretary.

Northern Virginia Veterinary Society, the second Wednesday of every third month. Meeting place announced by letter. H. C. Newman. Box 145, Merrifield, secretary.

Southwest Virginia Veterinary Medical Association, the first Thursday of each month. D. F. Watson, Blacksburg, secretary.

WASHINGTON—Inland Empire Veterinary Medical Association, the third Thursday of every month; time and place specified monthly. William F. Daut, Jr., 216 Federal Building, Spokane 1, Wash., secretary-treasurer.

Seattle Veterinary Medical Association, the third Monday of each month, Magnolia American Legion Hall, 2870 32nd W., Seattle. Roy C. Toole, 10415 Main St., Bellevue, secretary.

South Puget Sound Veterinary Association, the second Thursday of each month except July and August. B. D. Benedictson, 3712 Plummer St., Olympia, Wash., secretary.

WEST VIRGINIA—Kyowva (Ky., Ohio, W. Va.) Veterinary Medical Association, the third Thursday of each month in the Hotel Pritchard, Huntington, W. Va., at 8:30 p.m., Harry J. Fallon, 200 5th St., W. Huntington, W. Va., secretary.

WISCONSIN—Central Wisconsin Veterinary Medical Association, the second Wednesday of each quarter (March, June, September, and December). E. D. Baker, 1418 LaSalle Ave., Barron, Wis., secretary.

Coulee Region Veterinary Medical Association, the third Wednesday of every other month. F. N. Petersen, Box 127, Cashton, Wis., secretary.

Dane County Veterinary Medical Association, the second Thursday of each month. All but the special meetings will be held at the Top Hat Restaurant, Middleton. Robert E. Hall, 5718 Dogwood Place, Madison 5, Wis., secretary-treasurer.

Milwaukee Veterinary Medical Association, the third Tuesday of each month, at the Half-Way House, Blue Mound Rd. Dr. Raymond Pahle, 10827 W. Oklahoma Ave., Milwaukee, Wis.

Northeastern Wisconsin Veterinary Medical Association, the third Wednesday in April. William Madson, 218 E. Washington St., Appleton, Wis., secretary.

Rock Valley Veterinary Medical Association, the first Wednesday of each month. T. A. Rude, Jr., Stoughton, Wis., secretary.

Southeastern Veterinary Medical Association, the third Thursday of each month. John R. Curtis, 419 Cook St., Portage, Wis., secretary.

Wisconsin Valley Veterinary Medical Association, the second Tuesday of every other month. John B. Fleming, 209 E. 4th St., Marshfield, Wis., secretary.

CLASSIFIED ADVERTISEMENTS

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15th of month issue — 22nd of month preceding date of issue.

Names of classified advertisers using key letters can not be supplied. Address your reply to the box number, c/o JOURNAL of the AVMA, 600 S. Michigan Ave., Chicago 5, Ill., and it will be sent to the advertiser.

Wanted—Veterinarians

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Wanted—veterinarian or graduating senior as associate or partner for general practice in central Wis. Give college and year, full details and terms acceptable. Address Box E 5, JOURNAL of the AVMA.

Wanted—assistant veterinarian for busy small animal hospital in Boston area. Mass. license required. Send qualifications and salary desired. Address Box E 9, JOURNAL of the AVMA.

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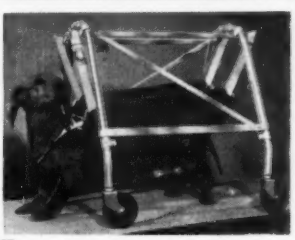

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Wanted—assistant for small animal hospital in St. Paul-Minneapolis area. State qualifications and personal background. Experience not necessary. Address Box E 18, JOURNAL of the AVMA.

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Experienced relief veterinarian, Cornell graduate, available for Long Island area. Competent in every phase of small animal practice. Call LIncoln 1-4276.

Affiliation with veterinary hospital desired by veterinarian experienced in both large and small animal practice with graduate experience in surgery. Address Box E 7, JOURNAL of the AVMA.

Wanted—associate position in general practice in Kan., Neb., Ill., Iowa, Minn., or Wis. Graduate (KSC '59), married, completing active military duty June, 1960. Address Box E 11, JOURNAL of the AVMA.

Graduate (COR '57), desires position leading to permanent association in small animal practice in Westchester, Conn. area. Married. Military obligations completed. Address Box E 12, JOURNAL of the AVMA.

Veterinarian, 1958 graduate, age 30, engaged in small animal practice, desires position with ethical pharmaceutical concern in sales and marketing with management future. Address Box E 14, JOURNAL of the AVMA.

Associate position with general practitioner desired by veterinarian with 8 years' experience. Primarily interested in large animals, but can handle small animal clinic. Address Box E 20, JOURNAL of the AVMA.

Veterinarian, age 30, family, seeks position with future in Connecticut, New Jersey, or Maryland. Three years' practical experience with small animals. Address Box E 23, JOURNAL of the AVMA.

Graduate (DUB '54) desires position in mixed practice. Single, age 31, excellent health, considerable experience. Address Box D 29, JOURNAL of the AVMA.

Experienced veterinarian available immediately for good position or lease of small animal practice in Mich., Ohio, Ind., Ill. Address Box E 3, JOURNAL of the AVMA.

Wanted—Practices

Have capital and experience. Will lease or purchase small animal hospital in Maryland or Connecticut. Address Box E 25, JOURNAL of the AVMA.

Wanted—established large animal practice in Iowa or western Illinois. 3 years' experience. Will consider partnership with recent graduate. Address Box E 2, JOURNAL of the AVMA.

For Sale or Lease—Practices

For sale—mixed practice in northern California. Real estate, equipment and drugs. Address Box E 31, JOURNAL of the AVMA.

For sale—general practice in central Kentucky. Only established veterinarian in county. Gross annual income—$30,000. Price—$6,500. Practice, drugs and equipment for ½ down. Long lease on office and hospital with opportunity to buy. Experienced lay assistant would stay on with new owner. Also available—spacious modern home on adjacent lot. Address Box E 10, JOURNAL of the AVMA.

For sale—small animal practice in southern California. No real estate, good lease terms, 50 cage capacity. Attractive net income. Price below year's net. Address Box C 17, JOURNAL of the AVMA.

For sale—Wisconsin practice, large and small animal. Office building, home, 2-way radio, large stock and equipment. Low down payment. Will consider modified rental with right man. Address Box E 17, JOURNAL of the AVMA.

For sale—general practice in southeastern Virginia. Equipped hospital and apartment. Gross $20,000. Priced reasonably. Must have Virginia license. Address Box E 19, JOURNAL of the AVMA.

Kansas mixed practice with small animal portion growing. Good potential. Plenty of testing. Priced to sell, as owner has other interests and must move soon. Address Box E 21, JOURNAL of the AVMA.

For sale—established Pennsylvania general practice, 90% large animal. Price—$30,000. Includes modern ranch house with large family room, living room, dining room, all new G.E. kitchen, 1½ baths, 3 bedrooms, finished basement, 2-car garage, office, drugs and equipment. Available June, 1960. Address Box E 22, JOURNAL of the AVMA.

For sale—general mixed practice in western New York. Established 25 years. Gross over $30,000. Includes house, small animal hospital, drugs, instruments. Selling price one year's gross. Address Box E 24, JOURNAL of the AVMA.

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Eastern Nebraska practice for sale or lease, 90% large animal. Furnished house, office, drugs, equipment and instruments. Address Box C 18, JOURNAL of the AVMA.

For sale—Illinois general practice, established 20 years. Price $25,000; includes house, garage, office, equipment, drugs, and office furniture. $5,000 to handle. Address Box S 34, JOURNAL of the AVMA.

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Jen-Sal DECTON Blue

. . . for PINKEYE and wounds

Effective . . . Convenient . . . Economical

DECTON Blue . . . contains dequalinium chloride (an entirely new antibacterial compound) and methylene blue in a finely-divided, free-flowing urea base. It is recommended for infectious keratitis and in all types of wounds in large animals.

DECTON White

Recommended for all types of wounds in small and large animals. Particularly effective in purulent and necrotic wounds in dogs. Possesses all the advantages of DECTON Blue, but formulated without the methylene blue to prevent staining. Effective, convenient, economical.

ORDER DECTON Blue DECTON White FROM YOUR JEN-SAL REPRESENTATIVE OR JEN-SAL BRANCH

DECTON controls most cases of early pinkeye with one treatment!

DECTON is not inactivated in presence of organic contaminants (pus, feces, etc.)!

DECTON'S proteolytic activity aids in the removal of encrustations and promotes healing.

DECTON'S unique, localized action does not prejudice systemic antibiotic therapy!

DECTON reduces photophobia by screening out harmful sunlight!

DECTON is safe, with improved non-caking properties!

DECTON is packaged in convenient 1¼ oz. plastic puffer bottles in attractive display carton of 12!

Write for case reports . . .

DECTON

another new and exclusive product of:

Jen-Sal®

Jensen-Salsbery Laboratories, Inc.
P. O. Box 167 Kansas City 41, Mo.